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Weight Stigma: A Global Health Concern

A scoping review from areas outside of Europe, North America, Australia, and New Zealand

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Abstract

Background: Overweight and obesity are increasing worldwide. Obesity has various health outcomes associated with it, and those that are stigmatized because of their weight face additional physical, mental, and social challenges. While WS and its health impacts are established in countries throughout Europe, North America, Australia, and New Zealand (ENAN), less is known about WS outside of these regions.

Aim: To identify the extent and focus of WS research in areas outside of the ENAN countries.

Methods: A scoping review of WS research from non-ENAN regions was conducted. SCOPUS and PsychInfo databases were searched and WS experts were contacted to identify relevant literature. Sources were classified based on country/region, population, setting, and category of WS researched. The Health and Discrimination Framework was used.

Results: 130 sources (research articles and papers) were identified from 33 countries and territories spanning every non-ENAN region. WS is being researched across populations and settings, mainly focusing on experiences (50%), practices (32.3%), drivers (39.2%), and personal outcomes (36.2%), of WS. Fewer sources included facilitators (19.2%) and organizational outcomes (3.1%) of WS.

Discussion: WS is a developing global health concern, shown by the sources found throughout the non-ENAN regions. The extent and focus of WS research vary between countries and regions. Emerging research indicates that WS exists in non-ENAN regions.

Conclusion: These findings indicate that there are many research gaps throughout the non-ENAN regions which need to be filled in order to address this global health concern through a collective, global effort.

Key words: overweight; obesity; stigma; weight stigma; weight bias; weight discrimination; scoping review; global health; Latin America; Caribbean; Asia; Africa; Oceania

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Key Concepts and Definitions

Weight/Obesity Bias is having "negative attitudes towards and beliefs about others because of their weight."[1] Obesity bias can negatively affect both mental and physical health in those that experience it, including leading to **Internalized Weight Bias** or **Weight Self-Stigma** which is "holding negative beliefs about oneself due to weight or size."[1] Biases can then lead to weight stigma.[2]

Weight/Obesity Stigma "is the social sign or label affixed to an individual who is the victim of prejudice"[1] because of their weight. Common stereotypes attributed to people with obesity include that they are lazy, unintelligent, non-compliant, untrustworthy, unmotivated, and lack willpower.[2] These stereotypes can then lead to weight-based discrimination. For this scoping review, the terms weight/obesity bias and weight/obesity stigma will be used interchangeably, simply known as weight stigma or WS.

Weight/Obesity Discrimination is the enactment of "personal biases and the social stereotypes about obesity"[2] resulting in the unfair treatment of people with obesity. Examples of discrimination include not being hired or promoted for a job, receiving inferior healthcare, and being bullied or harassed.

Implicit Bias is an "association[ ] or attitude[ ] that reflexively alter[s] our perceptions, thereby affecting behavior, interactions, and decision-making."[3] This is often measured using Implicit Association Tests.[4] Having an implicit bias does not necessarily mean that someone would have an explicit bias. For example, someone may automatically, without thinking, associate obesity with laziness (implicit), but they may not express that outwardly (explicit).

Explicit Bias is a conscious "feeling and/or thought about groups or identity characteristics . . . [that is] espoused openly, through overt and deliberate thoughts and actions."[5] Explicit bias against people with obesity are often measured through questionnaires such as the Antifat Attitudes Questionnaire,[6] the Beliefs About Obese Persons Scale,[7] and the Antifat Attitudes Test .[8]

Body Mass Index (BMI) "is a person's weight in kilograms divided by the square of height in meters."[9] This is often used to classify people as having overweight or obesity.

Overweight and Obesity are defined by the World Health Organization as "abnormal or excessive fat accumulation that presents a risk to health."[10] As a proxy for measuring fat accumulation, the BMI is often employed to determine if someone has overweight or obesity given its ease of calculation. For most adults, a BMI over 25 is considered as having overweight and a BMI over 30 is considered as having obesity. For Asian-Pacific populations, the BMI cut-offs for overweight and obesity are 23 and 25, respectively.[11] For children and adolescents, overweight and obesity are defined as "BMI-for-age weight status"[12] via percentiles of growth charts. A BMI between the 85th and 95th percentiles is considered as having overweight, and a BMI over the 95th percentile is considered as having obesity.

Nutrition Transitions in the context of this thesis are changes in dietary intake that result from such factors as economic growth, shifts from rural to urban living, and the influence of globalized food production and advertising leading to a shift from traditional diets consisting of minimally processed foods high in grains, fruits and vegetables to highly processed, energy-dense diets akin to those in Western societies such as Europe and North America.[13]

Health Disrupting Environments are environments that negatively impact health. **(**X. Ramos Salas PhD, interview, 17 May 2021) These include areas that lack access to health-promoting environments such as greenspaces, walking and biking paths, and grocery stores with fresh foods. They also include environments that make healthy behaviors difficult, such as those providing easy access to highly processed foods or that encourage driving over more active forms of transportation

Key Terms within Theoretical Framework

Stigma Practices are "stereotypes, prejudice, stigmatizing behavior, [or] discriminatory attitudes."[14] These are one of two forms of manifestations of stigma that will be discussed in this review.

Stigma Experiences are "experienced stigma and discrimination [as well as] internalized, perceived, anticipated, [or] secondary"[14] stigmas. These are the second form of manifestations of stigma that will be discussed in this review. These will be discussed within three groupings of stigmatizing experiences: stigmatizing encounters including general experiences of stigma; bullying, teasing and victimization in children and adolescents; and internalized weight bias.

Drivers and Facilitators of weight stigma are the factors that perpetuate stigma in society.[14] Drivers perpetuate stigma on individual levels, such as blaming others for their health condition or lacking awareness of said health condition.[14] Facilitators perpetuate stigma on a societal level via norms or law and policies that allow stigma to flourish.[14]

Personal and Organizational Outcomes are the results of experiencing stigma.[14] Examples of personal outcomes include the development of additional health conditions as a result of weight stigma or avoiding healthcare after being stigmatized by healthcare professionals.[14] Organizational outcomes may include changes to legal statutes or healthcare policies to reduce weight stigma.[14]

Intersecting Stigma or "stigma 'marking'"[14] are stigmatized characteristics or health conditions that may compound another stigmatization. For example, someone who stigmatized because of their gender may be more affected by an additional (i.e., weight) stigma than someone with the same stigmatized characteristic who is not stigmatized because of their gender.

Abbreviations

AWS	Addressing Weight Stigma
BMI	Body Mass Index
BTV	Bullying/Teasing/Victimization
ENAN	Europe, North America, Australia, and New Zealand
HIC	High-Income Country
IWB	Internalized Weight Bias
LMIC	Low and Middle Income Country
OB	Obese or Obesity
OW	Overweight
PE	Physical Education
PRISMA- ScR	Preferred Reporting Items for Systematic Reviews and Meta-Analysis extension for Scoping Reviews
PwO	People with Obesity
QD	Questionnaire Development
SDG	Sustainable Development Goals
SDH	Social Determinates of Health
SES	Socioeconomic Status
SE	Stigmatizing Encounters
SIT	Stigmatizing Images and Texts
SP	Stigma Practices
UAE	United Arab Emirates
UK	United Kingdom
UN	United Nations
US	United States of America
WHO	World Health Organization
WO	World Obesity Federation
WS	Weight Stigma
WSS	Weight Self Stigma

Introduction

Almost two billion adults and hundreds of millions of children and adolescents around the world have overweight or obesity (OW/OB).[10] Once associated with high-income countries (HICs), OW/OB have increased in all countries worldwide over the past 30 years.[15,16] This has added to the global burden of disease not only through obesity itself but also through the rising prevalence of morbidity and mortality related to having excess weight.[17] Obesity is a "chronic, progressive, relapsing disease"[18] that requires comprehensive prevention and management. The World Health Organization (WHO) first declared obesity a disease in 1948.[19] This has been mostly neglected in practice worldwide until more recently when organizations such as the American Medical Association[20] in 2013 and the Canadian Medical Association[21] in 2015 officially recognized obesity as a disease. By doing so, this also recognizes that obesity is a complex issue with "genetic, metabolic, environmental, and behavioral"[20] contributors rather than framing obesity as simply an issue of poor lifestyle choices or lack of motivation.

Simplistic framing and solutions may have unintended consequences. For example, public health framing of obesity as an issue of individual responsibility or as an issue of unhealthy eating or physical inactivity can perpetuate the stigmatization of people with OW/OB which has been demonstrated in countries with a long history of obesity prevalence, such as the United States (US) and Canada[20,22] Therefore, as the prevalence of OW/OB increases worldwide, it is important to learn from these mistakes and avoid blaming and shaming individuals for their health status and thus help reduce the perpetuation of weight bias and stigma which in and of themselves contribute to negative health and social outcomes.[23-26]

The WHO[1] defines weight bias as having "negative attitudes towards and beliefs about others because of their weight"[1] and weight stigma as "the social sign or label affixed to an individual who is the victim of prejudice"[1] because of his or her weight. While there is no universal interpretation of this definition, weight bias and stigma can include negative attitudes, language, imagery, behavior, and policies toward people because of their higher weight or larger size.[27] Weight bias and stigma can occur against people of any size, but this thesis will focus on bias and stigma directed toward people living with OW/OB.

The prevalence and effects of weight bias and stigma, collectively referred to as WS from here forward, have been well studied in many countries, particularly throughout Europe, North America, and Australia and New Zealand, heretofore known as ENAN.[28,29] This research has shown that WS affects people in many different contexts including within family settings, schools and universities, employment, healthcare systems, and others.[29] The effects of WS on individuals can include impacts on mental, physical, social, and financial wellbeing, thus increasing health inequalities.[29,30] In addition, this stigmatization can render public health efforts to address OW/OB ineffective or even nonexistent.[30]

While it could be easy to think about WS as a problem of the ENAN countries alone, no countries or regions live in isolation as societies across the globe exchange not only tangible goods and services but also ideas and ways of thinking.[31,32] In the context of factors that influence the prevalence of OW/OB and WS, the flow often goes from HICs, such as those represented in the ENAN, to low- and- middle-income countries (LMICs).[31,32] For example, many societies within LMICs have adopted ways of eating more akin to those in ENAN countries, leading to increased consumption of highly processed foods which has been associated with increasing OW/OB prevalence around the world.[32,33] During this same time, the thin body ideal, which is common in many ENAN countries, has also become more common around the world, including in LMICs.[34] This glorification of thin bodies has been shown to increase internalization of anti-fat attitudes towards oneself and others, thus priming the world for the rise of WS.[35]

Given the health implications of WS, the World Obesity Federation (WO) has recognized the need to understand how different aspects of culture and social context affect the way obesity is viewed as well as the role that language, imagery, and framing have to play in perpetuating WS (X. Ramos Salas PhD, interview, 28 January 2021). Rather than assuming that WS is a global issue and addressing this from an ENAN epistemological view, the WO seeks to understand how WS is considered or enacted from global perspectives. To help their global members, the WO would like to develop a common guide for obesity communications (i.e., language, imagery, and framing) that can prevent the perpetuation of WS while integrating the perspectives from all regions of the world. This guide would also take into account varying views on obesity, weight and weight-related matters in varied settings (public policy, education, academia, general public). To reach this goal and fill knowledge gaps, a

preliminary task is to gather information about where and in what ways WS is being researched outside of the ENAN countries.

Aims and Question

In collaboration with the World Obesity Federation Weight Bias Working Group who has informed the research, this review aimed to: 1. Determine the extent (how much) and the focus (what, who, and where) of existing weight bias and stigma literature in countries outside of the ENAN regions. 2. Identify and map the available evidence. This scoping review met these aims by answering the following question:

- In areas outside of Europe, North America, Australia, and New Zealand (ENAN), what is the extent and focus of research into weight bias and stigma?

This scoping review is part of a larger endeavor of the WO weight bias working group to address weight stigma globally. As such, the findings will be presented to the working group, which includes members from every region of the globe, to help inform the direction of their work, including where to focus additional research.

Conceptualizing Stigma

Before discussing the previous research into weight stigma and its relevance to global health, it is important to understand what stigma as a concept is and how weight stigma fits into this conceptualization. To do this, Goffman's[36] theories of social stigma presented in *Stigma: Notes on the Management of Spoiled Identity* will be explored. Stigma, he states, is "the situation of the individual who is disqualified from full social acceptance . . . [due to] . . . an attribute that is deeply discrediting."[36] According to Goffman, people are put into categories that give them a "social identity"[36] or status based on qualities seen in them ranging from personal (personality, looks) to structural (occupation, class). If people don't fit into what society would consider desirable categories or categories that represent how someone should be, they are no longer seen as fully human and are reduced to a personification of these negative attributes. This dehumanization justifies discriminating against them, making them inferior members of society, and, consequently, creating inequalities.

The stigma assigned to someone is related to the expectation of that person.[36] For example, someone with a college education working in a position that does not require higher education could be stigmatized for having a job inferior to what she is capable of having. However, that job may be perfectly acceptable for someone without an education. Regarding WS, having a larger body may be more acceptable for certain people or groups while others are more expected to maintain a thin figure. For example, women are often more stigmatized for their weight in ENAN countries than men.[37]

To further describe stigma, Goffman[36] introduces three main categories. The first is "abominations of the body – the various physical deformities"[36] such as blindness or not having use of one's legs. The second is "blemishes of individual character perceived as weak will, domineering or unnatural passions, treacherous and rigid beliefs, and dishonesty."[36] This includes stigma against people struggling with addictions, unemployment, mental health, or that have radial religious or political beliefs. The third is the "tribal stigma of race, nation, and religion"[36] that are passed on through generations.

Weight stigma easily fits into the first two types of stigma, and one could even argue that it fits into all three. Many see weight as something one should have control over, and if one cannot take care of himself and maintain a socially acceptable weight, then something must be wrong with his character.[29] This character flaw then shows itself physically in a body that is different or – to quote Goffman's word – "deformed."[36] Furthermore, since parents who have OW/OB are more likely to have children who have OW/OB, one could argue that they are subject to the third category of stigma as well.[38,39]

Stigmatization from others can lead to another form of stigma: internalized stigma.[36] Internalized stigma is when someone adopts stigmatizing beliefs about themselves, even if only for moments at a time, creating feelings of shame and disgust with oneself. This is seen in WS, known as internalized weight bias (IWB) or weight self-stigma (WSS).[40] As Goffman[36] points out, this can result in the quest to correct whatever is *wrong* with the person, which is often exploited by outside interests. In the case of weight, the quest to right the wrong of carrying excess weight and the exploitation of it is evident in the multi-billion-dollar weight loss industry pervasive throughout the ENAN countries. However, even though WS creates pressure for people to lose weight or fit into the desired body type, it does not, in

the end, promote weight loss.[30] On the contrary, it's often linked with weight gain and thus the perpetuation of more stigma.[30]

The final concept from Goffman[36] that will be discussed here is the idea that there are different levels of visibility or "perceivability"[36] with stigmas. A stigmatized characteristic that is not evident at first sight, such as gender identity, would be experienced differently than a stigma against something that cannot be hidden, such as the size of one's body. This first level of visibility considers how easy it is to know about a stigma, or "known-about-ness."[36] The other two levels are "obtrusiveness"[36] – how much the stigma interferes with interactions – and "perceived focus"[36] – what others perceive is hindered by this characteristic. A language barrier is an example of obtrusiveness because it obstructs conversation and maintains the idea that this person is an outsider throughout the interaction. With perceived focus, someone may be stigmatized in a work setting because of her younger due to the perception that she does not have the experience to complete the task at hand. Weight, or rather body size, is known about immediately upon sight. While it may seem odd to think that body size can obstruct interactions or emit a sense of inability, people with obesity face these types of visibilities as well. For example, chairs or booths that are too small will be a reminder that they, quite literally, don't fit into society. In addition, people with obesity are often seen as lazy and unreliable which could make someone perceive them as unqualified when applying for a new job.[29]

In summary, through Goffman's theory, people are stigmatized because of their weight not only because their body does not fit what society says is the correct body but also because they should be able to have control over their body size and how much weight they carry. Weight stigma could then be internalized, provoking the desire to fit body size or weight norms which is then exploited by sectors of society. It is especially easy to exploit and stigmatize people with OW/OB given the multiple levels of visibility it has.

While Goffman has provided an understanding of what stigma is, his theories will not be used as the theoretical framework for this scoping review. This is because Goffman's concepts focus on the micro-level interactions between individuals and society, whereas this thesis is focusing on research into stigma and its relationship to public health rather than the actual stigmatizing interactions between individuals and society.[14,36] Before examining this further along with the framework that will be used to structure the results and discussion of this

scoping review, the previous research done in WS and its relevance to global health will be explored.

Previous Research

There is abundant evidence of WS occurring throughout society. Much of the research is out of the ENAN countries and focuses on stigmatization in healthcare, employment, and educational settings, as well as its physical, social, and mental health ramifications.[29,41,42] Based on initial searches for WS on Scopus and PubMed, research into WS has been ongoing for decades, with the first jump in publications starting in the late 2000s/early 2010s, followed by another surge in the mid-2010s that has remained constant. The following section will summarize topics of WS research and the consequences of various forms of WS.

Stigma as a Risk for Poor Health

It is well documented that stigma and discrimination, regardless of what is being stigmatized, is associated with worse health outcomes.[43] This is true of stigmatization toward people living with certain diseases and conditions such as HIV/AIDS, epilepsy, and mental illness.[14] This is also true if the stigma is unrelated to health itself, including stigmatization based on sex/gender, race/ethnicity, religion, and sexual orientation, to name a few.[14,43] In knowing that WS itself contributes to worse health outcomes, including obesity itself, it is important to understand where and how stigma unfolds so that societies can proactively prevent or halt discrimination to ensure better health outcomes for their populations.[44]

Weight Stigma Prevalence

Weight stigma is pervasive throughout many of the ENAN countries and has continued to increase over the years.[28,29] A study from Andreyeva et al,[23] published in 2008 showed that from 1995-1996 to 2004-2006, the prevalence of WS in the US increased from 7% to 12%, which was similar to rates of racial stigma at the time. Similarly, a 2015 study from Tomiyama et al[45] indicated that obesity researchers and healthcare professionals exhibited more anti-fat bias in a 2012 study when compared to a similar study in 2001. A 2016 systematic review[26] of nine obesity and discrimination studies subsequently demonstrated

that around 19% of adults with a Body Mass Index (BMI) between 30-35, and 42% of adults with BMIs over 35, experienced weight discrimination, with an increase in WS prevalence as BMI increased among women. In a more recent study[40] from 2018, 52% of adults with OW/OB experienced internalized weight stigma.

Weight Stigma in Healthcare

Weight stigma in healthcare is well documented in the ENAN countries.[29,46-49] In the US alone, about 12% of those who experience stigma in the US healthcare system are stigmatized for their weight.[50] One common way to assess WS in healthcare students or professionals is to measure stigmatizing attitudes, beliefs, prejudices or behaviors.[29,42,46] This stigmatization could be toward people with obesity or even treatments for obesity, such as surgery or medications.[29,46] There is also exploration into experiences of WS, including patients' direct experiences and perceptions of WS encountered in healthcare.[29,42,46] In addition, there is also research related to the outcomes of WS, such as decreased or delayed utilization or offering of healthcare services.[46,51]

This research shows that healthcare providers consistently perceive patients with obesity as noncompliant, lazy, less intelligent, hostile, dishonest, and lacking self-control.[46] Additionally, healthcare providers spend less time with patients with higher BMIs compared with lower BMIs, offer fewer preventive health screenings, have limited knowledge of – or bias against – treatments for obesity, and often lack equipment suitable to treat individuals with bigger bodies.[29,42] These actions reduce the quality of, trust in, and utilization of healthcare services among people with OW/OB, resulting in poorer health outcomes regardless of body weight.[37,42,46,51] Weight bias and stigma among healthcare professionals and the effects it has on the care received by patients with obesity is a compelling example of how factors that determine one's health reach beyond the individual themselves.

The WHO defines the social determinates of health (SDH) as "non-medical factors that influence health outcomes."[52] To uphold a population's right to health, health systems need to include four essential standards of healthcare ensuring availability, accessibility, acceptability, and quality.[53] Health promotion, prevention, and treatment is also part of the United Nations' Sustainable Development Goal number three: to "ensure good health and

wellbeing."[54] Denying patients treatment for obesity, not offering important health screenings, not listening to patient needs, misunderstanding the complexity of OW/OB, and treating patients with disrespect both denies people with OW/OB the right to health and hinders progress in reaching this SDG.[29,55] In acknowledging this, there are efforts underway to improve care for people with obesity.[56,57]

Increasing the knowledge and understanding of WS and the disease of obesity among healthcare professionals is one strategy to improve care for people with OW/OB and reduce WS.[56,58,59] Some interventions have shown mixed results, which are largely attributable to poor study design or inadequate follow-up.[58] Nevertheless, the systematic effort to improve care and reduce WS is promising. For example, educating healthcare professionals on the determinants of obesity that are outside of one's control, such as genetics or metabolic conditions, has shown to reduce weight bias and improve care.[56] Even though educating healthcare professionals on the causes of obesity and WS may be relatively easy to integrate into current curriculum and professional development, there are other areas of society that exhibit WS that can significantly impact health.

Weight Stigma in Employment

One of the less apparent places WS creates individual and societal inequalities, health and otherwise, is in the workforce.[29,30,60-65] Weight stigma and discrimination affect people in nearly every phase of work-life, where women with OW/OB are the subject of discrimination in particular.[29,62,64,65] People with obesity within the workforce are often perceived to be lazy, slow, unreliable, unintelligent, and unqualified.[63,64,66] People with obesity also make less money and are less likely to be interviewed, hired, or promoted, when compared to their peers who do not have OW/OB.[60-63] Additionally, they are more likely to face disciplinary actions and termination.[60-63]

Unlike other forms of discrimination, few societies legally protect their residents against weight discrimination despite public support for such laws.[67,68] In the US, some states and cities, including Washington State, Michigan, and San Francisco, have anti-weight-discrimination laws.[69] In the European Union, obesity can be considered a disability that offers legal protections, but discrimination based on weight or body size itself is not

protected.[70] The inability to seek legal protections drives the discrimination of people with obesity and sustains their underemployment, underpayment, and maltreatment. While WS within the workforce may be interpreted as purely an economic issue, socioeconomic status is also a determinant of health.[71]

Socioeconomic status (SES) is one of the SDH that has the widest-reaching effects on health.[71,72] Within every country around the world, regardless of how rich or poor the country is, the lower one's SES, the worse his or her health outcomes.[52] This results not only in health disparities and inequalities for individuals but also contributes to public health disparities.[29,30] If the weight discrimination in employment in the ENAN countries is also occurring or starts to occur in other countries as obesity levels rise, this could have grave consequences. These include not only the inability of people to improve their economic standing and the economic standing of the country, but it could also exacerbate the double burden of disease that many countries are facing as they go through economic and nutrition transitions.[32]

Weight Stigma in Education

Another SDH closely related to employment is education, with those achieving higher levels of education experiencing higher levels of health.[71] Much like the job sector, WS is seen at every level of education – from primary school through graduate studies.[73] Young people living in bigger bodies are more likely to be teased, mentally and physically bullied, and ostracized.[73] WS most often occurs in the school setting where children spend the bulk of their social time.[73] In a study on adolescents seeking weight loss by Puhl et al,[74] 71% of study participants had experienced weight-based victimization at school within the last year. Weight-based bullying is the most common form of bullying among girls and the second most common in boys.[42] Furthermore, parents, teachers, and students all cite excess weight as the main reason that young people are bullied.[42] Most of this victimization comes from peers and friends, but coaches, parents, and teachers are also a source of WS.[42,73,74] While WS from peers and parents can indirectly affect school performance, WS held by teachers can have direct effects on students' academic achievements.[73]

Most of the studies researching pre-service (student) teachers' and teachers' perceptions of students show that they have both explicit and implicit bias against students with obesity.[73] Physical education (PE) teachers, including professors teaching PE university students, are

often the subject of such types of research, which often show that they have stronger biases than their non-PE colleagues.[73] Regardless of teaching specialty, students with obesity are often seen as a burden, and as having lower academic, physical, and social skills.[42] In addition, Finn et al[75] showed that, on a fake assignment, teachers gave students with OW/OB lower grades than their classmates without OW/OB. Another direct effect of WS on academic opportunities was shown by Burmeister et al[76] when applicants to a graduate school with higher BMIs were significantly less likely to be admitted than those with lower BMIs, with a stronger association among female applicants.

These types of stigmatizing and discriminating acts against young people with OW/OB have negative consequences in addition to poorer academic performance. Other risk behaviors demonstrated include absenteeism, low self-esteem, depression, self-consciousness, weight gain, eating disorders, loneliness, as well as higher use of drugs and alcohol among postsecondary students.[42,73] Negative mental, social, and physical health outcomes, along with denial of certain grades or admission into schools, greatly affects prospects in education, employment, earning potential, and SES.[71] Despite the magnitude and effects of weight-based bullying, it is often not recognized in anti-bullying policies, much like weight-based discrimination against adults is rarely protected. For example, only three states in the US include weight as a risk factor for being bullied.[77] Taken in aggregate, these SDH affected by WS correlate to a decline in health.

Weight Stigma and Physical, Mental, and Social Health

Some believe that through stigmatization, people with OW/OB will be motivated to lose weight, but research would suggest that the opposite is true.[37] Regardless of BMI, experiencing WS causes weight gain, stimulates the body to produce higher levels of stress hormones such as C-reactive protein and cortisol, exacerbates metabolic syndrome, increases the risk of type 2 diabetes and cardiovascular disease, reduces mobility, and, above all, increases the risk of death.[29,37] Merely perceiving oneself as overweight and internalizing weight stigma is linked with poorer health outcomes.[37] Weight stigma also worsens eating behavior and reduces engagement in physical activity.[37,42,78] These negative health effects are only made worse when coupled with the effects of WS in healthcare discussed above. Because of WS, people have worse health yet avoid the healthcare system and, when they do

seek treatment, they receive poorer care than non-OW/OB patients. This could, in theory, mean that obesity along with other diseases and conditions such as cancer, diabetes, and hypertension take longer to receive diagnoses and treatment thus intensifying negative health outcomes. However, physical health is not siloed; it goes hand in hand with the negative mental and social health outcomes of WS.

Weight stigma increases the risk of depression, anxiety, loneliness, isolation, poor self-esteem, poor body image, poor psychosocial functioning, substance abuse, self-harm, and suicide.[29,42,79] Many of these effects are seen in young people that have been the victims of weight-based bullying and teasing.[29,42,73] Weight stigma also supports an unhealthy relationship with food that can manifest in harmful behaviors such as binge eating, emotional eating, and eating in secret.[29,78,79] The culmination of these psychosocial stressors promotes harmful physical effects, including obesity itself.[44,80] In addition, being stigmatized in any way lowers one's social capital, which reinforces difficulties in climbing social and economic ladders.[36]

Summary

Previous research has shown that WS impacts health negatively in ways far beyond the biomedical effects of excess fat in the body. These include direct and indirect effects on physical, mental, and social health, as well as many of the SDH including access to quality healthcare, employment, and education. As with all types of stigmatization, the negative effects on health and the SDH increase inequalities within societies, perpetuating a cycle leading to more inequalities and poor health outcomes. That being said, what has been discussed thus far has overwhelmingly focused on WS in the ENAN countries, leaving the question: what is happening in the rest of the world?

To the best of the author's knowledge and that of the WO, there have not been any literature reviews analyzing where weight bias, stigma, and discrimination are being researched outside of the ENAN nor what focus this research has. Given the widespread ramifications of WS, filling this gap in knowledge is necessary to understand and address what could quite possibly be a global phenomenon.

Relevance to Global Health

As one of the Sustainable Development Goals (SDGs),[54] ensuring good health and wellbeing to all is a global priority, and the spread of WS is a hindrance to meeting that goal as demonstrated through the previous research. The spread of WS is particularly concerning since the prevalence of OW/OB is increasing in every country worldwide, even in countries that were once associated only with undernutrition and wasting.[13,15] Facing the direct health effects of the growing prevalence of obesity compounded by the health effects of WS would present many challenges to public health efforts globally.

This rise in OW/OB is frequently associated with economic growth which often coincides with more people moving into urban areas that expose them to health-disrupting environments such as areas that lack spaces for recreation or that make it easy to choose unhealthy foods over healthy foods, including areas that lack access to fresh foods but have great access to highly processed foods.[32,81] This shift often results in a nutrition transition in which people move away from their traditional diets of minimally processed foods high in grains, fruits and vegetables and adopt a diet that that is more akin to diets from countries within the ENAN regions that are higher in calories, fat, meats, sugar, and processed foods.[13,32,82] These types of nutrition transitions have been happening around the world, including in Sub-Saharan Africa, Latin America, Asia, and the Middle East.[13,32,82-88] Many factors contribute to this, including families no longer having land to cultivate; lack of knowledge and education around healthy behaviors; access to supermarkets containing processed foods rather than smaller local markets with mainly fresh foods; and the adoption of modern vs traditional lifestyles including more households where both partners work which increases the demand for quick-fix, processed foods.[13,32] While obesity is a complex disease with many other factors involved, these changes in society illustrate a few of the contributors to the growing prevalence of obesity throughout the world.[32]

In HICs, the prevalence of obesity is higher among those with lower SES, while in LMICs the prevalence higher in those with higher SES.[89] Research also shows that obesity in LMICs is correlated with economic growth, which is attributable to the nutrition transition societies undergo during economic growth and development.[32,89] However, as these transitions evolve, the prevalence of OW/OB increases more rapidly among the poorest members of society.[16] Whereas traditionally the thinner body type associated with poverty or

stigmatized conditions like HIV/AIDS[90] could have been a source of discrimination, those with lower SES may now face discrimination for having either too small *or* too large of a body. One argument countering the perpetuation of WS is that societies that have stigmatized thinner bodies and revered bigger bodies could, in theory, quite possibly have some protection against obesity bias. However, much like influence from the ENAN countries has contributed to the prevalence of OW/OB, it may also contribute to the development or perpetuation of WS.[28,34]

This is not to say that influence only flows in one direction from ENAN to non-ENAN countries. However, what is concerning in the context of WS is that exposure to thin ideals – typically from countries within the ENAN regions – is related to increased levels of WS.[91] Research shows that the thin body ideal is increasing around the world, especially among people of higher SES in urban settings with economic growth, which mirror factors related to increases in OW/OB.[32,34] Among many other influences, exposure to media from the ENAN countries and the desire to appear successful and modern (vs traditional) are some of the facilitators of this thin ideal.[34,92]

A study from Marni et al[93] demonstrated that nations with higher obesity prevalence statistically also have more obesity bias. This does not show cause and effect, but it does suggest that obesity becoming more prevalent in a society does not necessarily protect against WS. Rather, this may give some indication that factors that are related to increases in the prevalence of OW/OB may also contribute to increases in WS as discussed above. With many factors influencing both the development of OW/OB and WS around the world, the ways these intertwine are something to be aware of in societies around the world.

While the spread of the thin ideal is a concern in the development of obesity bias, one of the strongest predictors in the ENAN countries of WS is the belief that body weight is within a person's own control.[55,91,94] As discussed earlier, many factors contribute to excess weight, including genetics, metabolic factors, health disrupting environments, lack of healthcare, lower SES, and WS itself. It's difficult to say whether or not lacking knowledge about obesity as a disease would be a common driver of WS around the world at this point. Momentarily revisiting Goffman,[36] this would assume WS is more driven by society seeing obesity as a character flaw rather than a body that does not fit into what that society considers normal or ideal. Since many societies have preferences for bigger bodies,[34,95] one could

argue that changes in cultural norms related body shape and size may be a stronger facilitator of WS than beliefs about controllability of weight depending on where this WS is taking place. Nevertheless, increasing knowledge about OB as a disease will likely not only improve care for patients with obesity but could also reduce the risk of WS.

To summarize the above considerations, the prevalence of OW/OB is increasing throughout the world. Various factors that are contributing this increase mirror those that could create changing body size norms resulting in an increase in the thin body ideal. These changing body size norms may then increase the stigmatization of people with obesity. In addition, knowledge about obesity as a disease and controllability of weight may be lacking in many societies as it is in the ENAN countries, which could be another risk factor for the development of WS. In understanding the implications of WS on individual and public health, it is important to identify where WS is occurring and how it is manifesting around the world. Through this knowledge, organizations such as the WO will be better equipped to address WS at a global level through unified messages and action plans to improve the health and wellbeing of those stigmatized by individuals and society due to their weight.

Theoretical Framework

Goffman's[36] theories have provided a base conceptualization of stigma at the micro level, but as mentioned earlier, they will not be used as the theoretical framework for this thesis since the focus here in on the phenomena of research into weight stigma and its relationship to public health. To better analyze this, the findings of the scoping review and examine WS beyond the individual and interpersonal levels, a broader framework will be utilized to examine the forces that perpetuate stigma in society at large.

Previous research on WS clearly shows that stigma against people with obesity is not simply about individual interactions. Rather, there are societal factors that both perpetuate WS and allow it to endure. To address this, one needs a full depiction of how WS runs through society and the effects that it has. As Parker and Aggleton[96] point out, it is "important to better understand how stigma is used by individuals, communities and the state to produce and reproduce social inequality." This goes beyond Goffman's[36] ideas around stigma that focus more on changing individual behaviors at the micro-level. Rather than stigma being

alleviated by educating individuals about stigmas and teaching people that are stigmatized how to manage their situation, stigma also needs to be addressed at a higher societal level to create a true impact in the alleviation of stigmatization.[96] Tyler and Slater[97] further criticize Goffman's approach to stigma as neglecting to "address structural questions about the social and political construction of stigma as a form of power." These broader ideas about stigma parallel those behind the social determinates of health.[71] That is, one's health is not only an outcome of individual behaviors and choices but is greatly determined by the systems around him. In the case of this review, stigma is not just about individual or group prejudices but rather the impacts of systems that either perpetuate or terminate stigmatizing attitudes and actions.

The previous research from the ENAN countries has demonstrated systems contribute to and reinforce WS, including those within healthcare, education, employment, and even the law. To explore this within this scoping review, *The Health Stigma and Discrimination Framework* from Stangl et al[14] will be utilized to structure the results and discussion of the findings of WS outside of the ENAN countries. Unlike other frameworks that tend to focus on the individuals that are either the victim or perpetrator of the stigma, this framework takes a broader approach to include the "social, cultural, political, and economic forces that structure stigma."[14] This helps identify where research, policies, and interventions could take place as well as analyze the outcomes both for individuals and society. This broader approach also empowers people at every level to address issues related to stigma, including those who experience stigmatization.

In this review, the framework will be employed to determine in which levels research is being done in the non-ENAN countries/regions. See Figure 1.[14] The base level includes drivers and facilitators. Drivers most often include the factors that perpetuate stigma from individuals, such one's own experiences with people with obesity. Facilitators are broader influencers of stigma such as community or structural factors including societal norms or laws and policies. The next level in the framework focuses on concurrent or intersecting stigmas such as race/ethnicity or sex/gender. This was not the main focus of the review but will be addressed briefly in the results and discussion. The third level is manifestations of stigma. These include stigma experiences, such as lived or perceived experiences of discrimination, and stigma practices, which are the prejudices or beliefs held toward, in this case, people with obesity. The final level that will be utilized in this review is outcomes. Outcomes can be

personal, such as the development of depression due to WS, or organizational, such as the implementation of laws or protections against discrimination based on stigmatized characteristics. Given that outcomes and impacts (see Figure 1) often overlap, this review will combine the two into outcomes.

Figure 1. The Health and Discrimination Framework

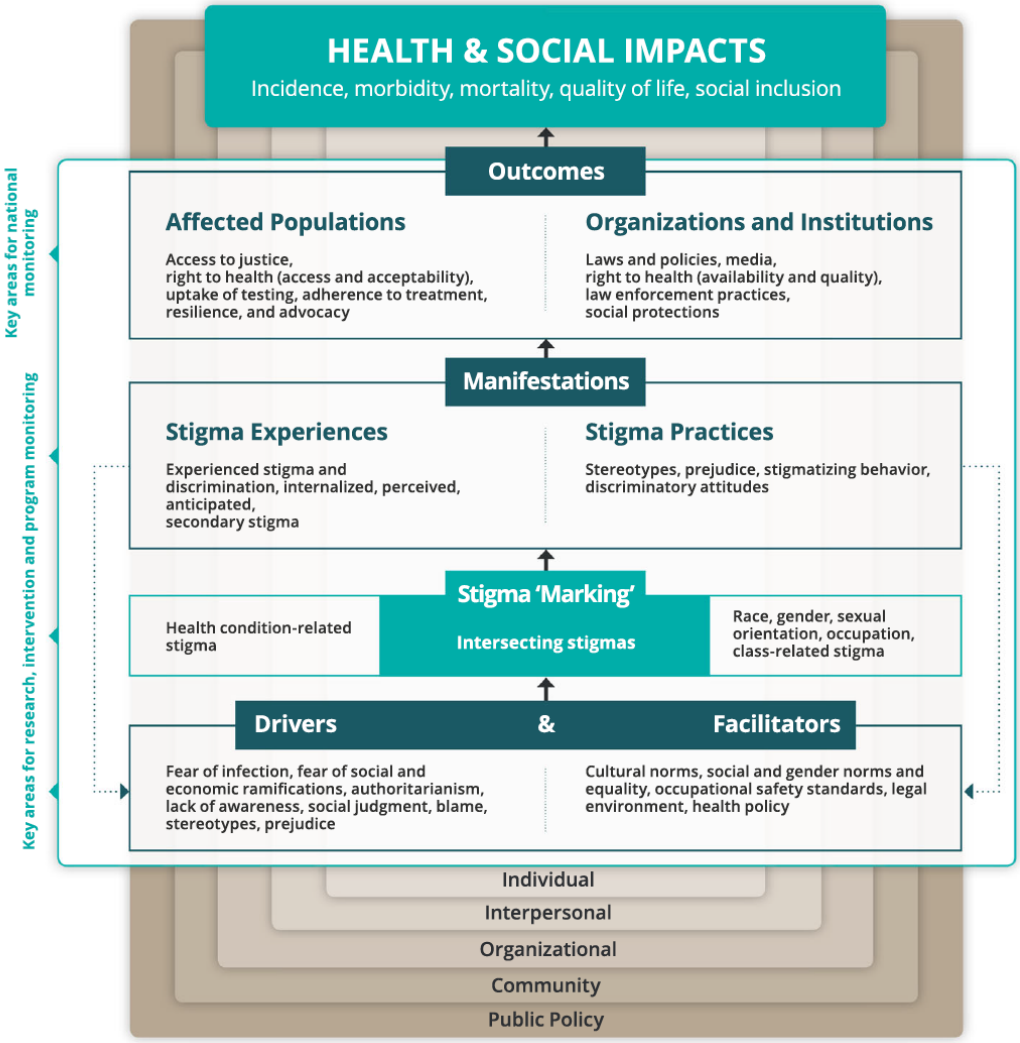


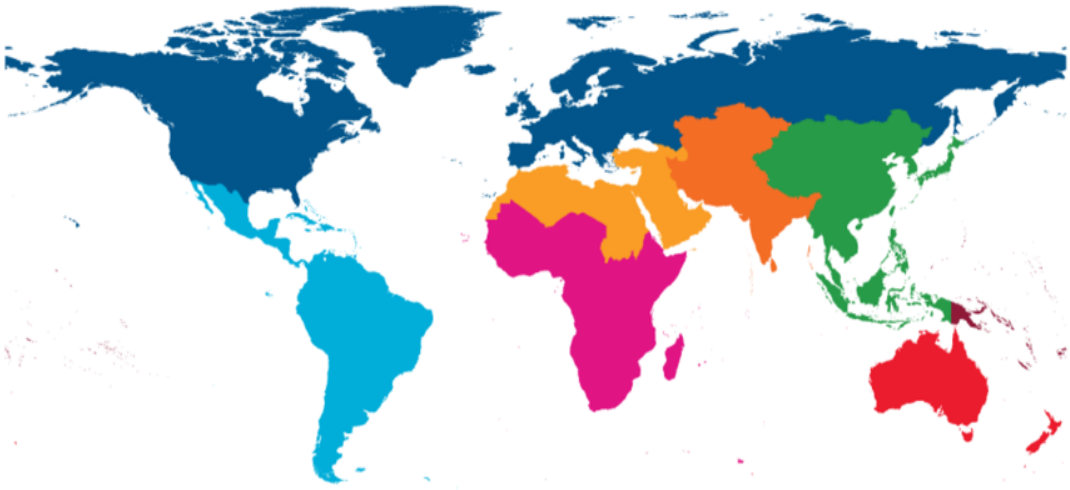
Figure used with permission from the first author, Stangl, A (2019)[14]

Study Design and Methods

Protocol

To answer the research question, a scoping review was conducted following the methodological framework outlined in the Preferred Reporting Items for Systematic Reviews and Meta-Analysis extension for Scoping Reviews (PRISMA-ScR),[98] and the scoping review framework discussed by Arksey and O'Malley[99] was also consulted in the process.

Figure 2: SDG Indicator Regions



Eligibility Criteria

- The research article or paper was conducted on or written about populations within the regions of the United Nations' Sustainable Development Goals (SDG) "regional groupings used in Report and Statistical Annex"[100] listed below. See Figure 2[100] above with the colors representing each included region specified below. The regions included in this review are:
    - Latin America and the Caribbean (Light Blue)
    - Eastern and South-Eastern Asia (Green)
    - North Africa and Western Asia (Yellow)

- Central and Southern Asia (Orange)
- Sub-Saharan Africa (Pink)
- Oceania excluding Australia and New Zealand (Dark Red)

For this scoping review, the regions were used for sorting purposes and were not intended to be used for comparative purposes. These specific regional delineations were selected based on the desire of the WO to sort the findings in a way that will be useful to the weight bias working group that has representatives from every region but not every country. The regional delineations were also chosen on the basis that non-ENAN and ENAN countries did not overlap within the regions, and the United Nations Statistics Division uses them when determining progress towards the SDGs.[100]

- The research article or paper was published between 1 January 2011 – 9 March 2021. The range reflects the beginning of the surge of WS publications in the ENAN countries through to when the searches for this review were conducted.
- The research article or paper was in English or had an abstract in English. Abstracts in English were included if sufficient data was available to demonstrate relevance to the WS topic. By including abstracts in English, additional evidence of research into WS was able to be found that would have otherwise been missed due to language barriers.
- Grey literature was included if found through the information sources discussed below. This includes commentaries, theses, conference abstracts, and other non-published academic papers written in English. This was included since this scoping review was aimed at finding what research into WS exists rather than comparing quality, methods, or other factors of the sources.
- The research article or paper itself specifically addressed/evaluated weight stigma, bias, or discrimination. This includes study designs and articles of all types found through the information sources presented below. Terms concerning stigmatization included bullying, teasing, victimization, prejudice, discrimination, stereotyping, attitudes, beliefs, phobias, stigma, bias, and shame regarding people living with OW/OB. These subjects and others (See Appendix 1 for Database Searches) were based on previous research on similar topics.[51,101] To reduce researcher bias as the author and second reviewer came from ENAN countries and hold WS perspectives

influenced by that paradigm, topics were not included that are related to WS but did not necessarily demonstrate WS in all contexts. These include such topics as thin idealization, body preferences, or beliefs about obesity as a disease unless the article examined such topics in relation to WS.

- Original studies cited in review papers were included

Information Sources

Searches to identify sources for the scoping review, including published and grey literature, were conducted in SCOPUS and PsychInfo databases. SCOPUS was used because it covers a wide range of topics including health and social sciences. PsychInfo was used because it contains literature related to psychology and the humanities. These searches began on 1 February 2021 and were completed on 9 March 2021. In addition, experts in the field of WS at the World Obesity Federation, Obesity Canada, Obesity Action Coalition, the Rudd Centre for Food Policy and Obesity, the European Association for the Study of Obesity, and other organizations were contacted to identify additional articles that did not appear in the literature searches. Lastly, articles found through other means such as searches done during an initial investigation into the topic were also included. Searching a third database was considered, but additional sources were not found during an initial hand search of one of the databases considered (PudMed).

Search Strategy

A pilot search in SCOPUS was conducted followed by modified/refined searches in SCOPUS and PsychInfo using specific search queries that were developed and refined as informed by keywords used in other scoping and literature reviews with similar topics.[51,101] The searches were conducted slightly differently between SCOPUS and PsychInfo due to the databases' unique searching formats. Librarians at the University of Gothenburg's Biomedical Library aided in the search process through advice on how to combine search queries and which databases to use. See Appendix 1 for search strategies including words, queries, and filters for each database. The filters were chosen based on relevance to WS topic or eligibility criteria such as included regions. It had been originally planned to search reference and cited by lists of sources selected for the review. However, due to the number of articles that the database searches rendered combined with the limited time frame, it was decided this step was not necessary for this scoping review.

Selection of Sources of Evidence

Research articles and papers (i.e., sources) were selected based on relevance to the topic of WS based in countries/regional areas within the eligibility criteria. The author screened titles and abstracts, using the eligibility criteria discussed above. Relevant studies were exported to EndNote reference manager where duplicates were removed. A second reviewer was included in further scrutinization of the full texts (when available) to determine eligibility. Discrepancies between the reviewers were discussed with thesis supervisors. See Figure 3 located in the results section for the PRISMA-ScR flow diagram.

Data Charting Process and Items

A data charting form was created and used to categorize data from selected sources in Microsoft Excel. Source authors; titles; funding; abstract vs full text; year of publication; country and region; setting of stigma and study; impetus for study; aims; study design; methods; study population; main category of WS researched which included manifestations of stigma; if the study included drivers, facilitators, and/or outcomes; main findings; differences in findings between males and females; and implications were documented. The drivers, facilitators, outcomes, and the WS category – including the manifestations of WS – were based on the methods and results that each source reported. The second reviewer aided in this process when there were ambiguities in how to interpret/treat the data. The second reviewer also checked at least 10% of the charted results in full to confirm consistency. Updating to the form and refining of the extracted data was done consciously in an iterative manner as seen fit by the reviewers. See tables in Appendix 2 for condensed versions of the main Excel table. Please contact the author for questions regarding additional data.

Critical Appraisal of Individual Sources

This step was not conducted as assessing methodologies and quality of data was not a part of this scoping review.

Synthesis of Results

From the charts in Appendix 2, the data was synthesized into tables created for the overall results and each region. Data in the tables include the general population studied, setting, and

the study category. Two population sub-groups were additionally highlighted: university students and studies that specifically studied participants with OW/OB. University students were included as a sub-group because they are often used in research and perhaps over-represented.[102] To bundle this sub-group with adults without calling attention to it would be misleading. Studies that only included participants with OW/OB were highlighted as a sub-group per the request of WO Weight Bias Working Group representatives. In addition, subgroups within two settings were highlighted. These were pre-healthcare (healthcare students) within the healthcare setting and pre-education (student teachers) within education for the same reasons that university students were highlighted among adults. See Tables 1-8 in results. In addition, a map of the world was created presenting a visual summation of the clustering of studies in each country. See Figure 4 located in the results section.

Ethical Considerations

The process of doing the scoping review itself does not present ethical concerns and did not require ethical approval. However, there are some ethical concerns related to the topics of OW/OB and WS in areas outside of the ENAN countries. Many societies within the ENAN countries predominantly value thin body types, and WS is highly prevalent there.[34] But in non-ENAN countries, WS may not be perceived as a public health priority. The concern here is, with limited resources, should public health efforts be directed towards something (WS) that is perhaps not a concern and quite possibly made to be a concern due to imposition by the ENAN countries? That being said, simply because certain public health concerns are not at the forefront now does not mean they won't be in the future, like in the case of obesity itself. For example, regardless of historical body size ideals, the promotion of thinness as the ideal has expanded due to the globalization of the thin body ideal from the ENAN countries to the non-ENAN countries.[34] Therefore, it is possible that WS could become or already has become an issue globally.

Another ethical concern with this study is that it is difficult to give equitable representation to all countries and regions represented in the inclusion criteria as there is not a way to equally access journals and grey literature that could contain WS research from the included countries/regions whether that be due to language or other barriers. Ideally, research from all countries would have had the same opportunity to be found and included in the review.

Researchers within certain countries or regions may publish in English or include an abstract in English more than others and therefore would have the opportunity to be included in this scoping review while researchers from other countries or regions that do not publish or produce an abstract in English would not. This could give an incomplete representation of the extent and focus of research being done in certain areas simply because it was not possible to equally access research given the study design. It is also difficult to access or include literature that may use different phrasing or conceptualizations to describe WS than what was included in the search for this thesis.

How weight bias and stigma is conceptualized and enacted across societies may look different in different countries and contexts. That is why the WO Weight Bias Working Group has determined a need to begin an exploration into WS in countries outside of the ENAN regions, beginning with this scoping review. It is the first step in understanding if and how WS manifests around the world. It will also contribute to the working group's aim of creating a guide on obesity language, imagery, and framing that can avoid the perpetuation of WS and other unintended consequences, show respect and dignity to people of all shapes and sizes, and be culturally relevant and appropriate.

Results Overall

A total of 182 unique research articles and papers (sources) were assessed for eligibility after initial screenings and hand sorting with an additional 22 added from other sources for a total of 204. Of the 204, 130 met inclusion criteria. See Figure 3 for search details within the PRISMA-ScR[103] flow chart. To frame the results, the levels of drivers and facilitators, manifestations, and outcomes within the Health and Discrimination Framework[14] will be referred to when identifying the focus of the sources found in the review. The level including intersecting stigmas will be addressed in brief but was not a main focus of the study. As outlined in the methods, the extent and focus of the sources will be additionally assessed through the number of studies in each country/region, study category, the study population, and the setting of the WS.

Figure 3: PRISMA-ScR Chart

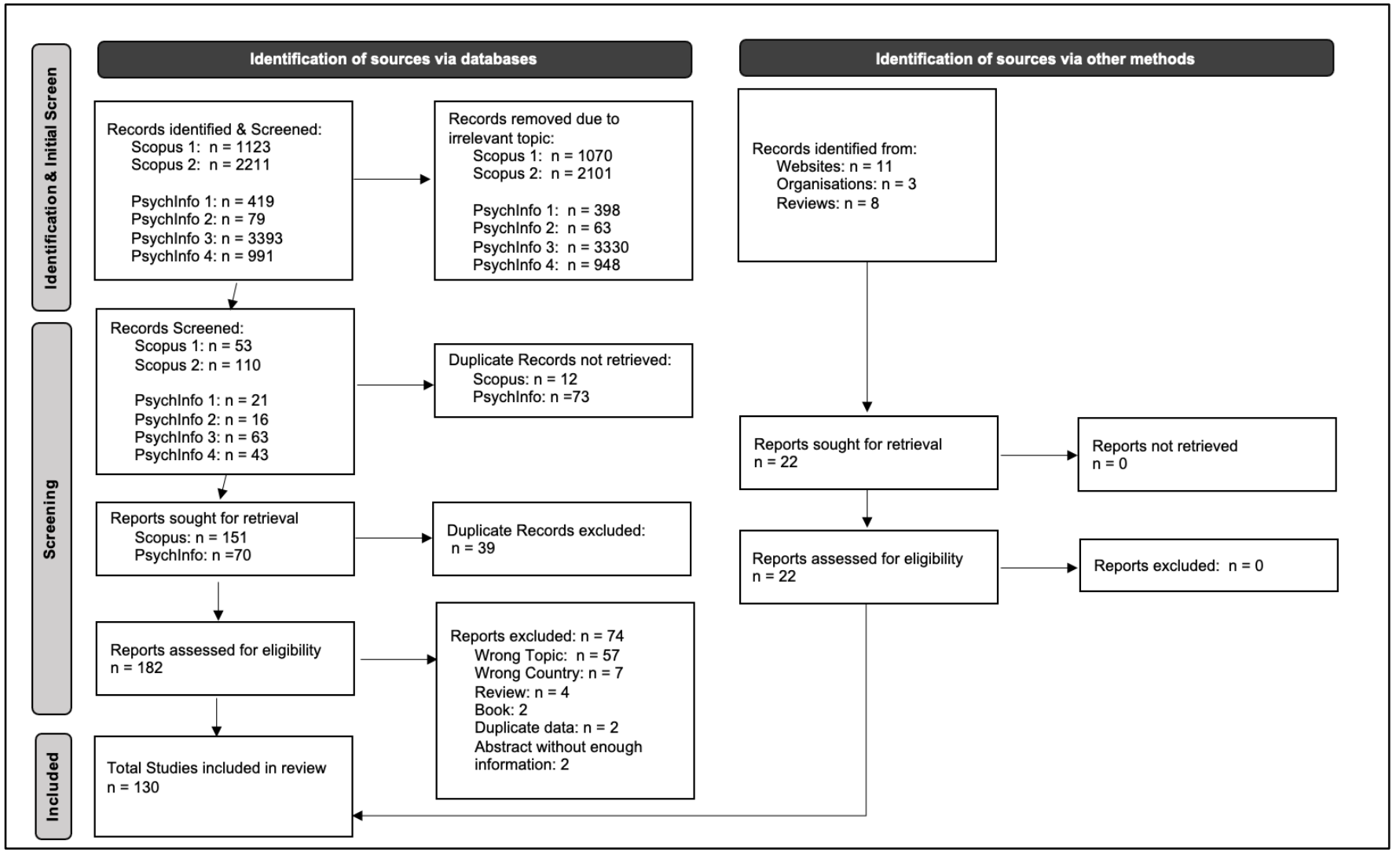


Figure adapted from Page, et al [103]

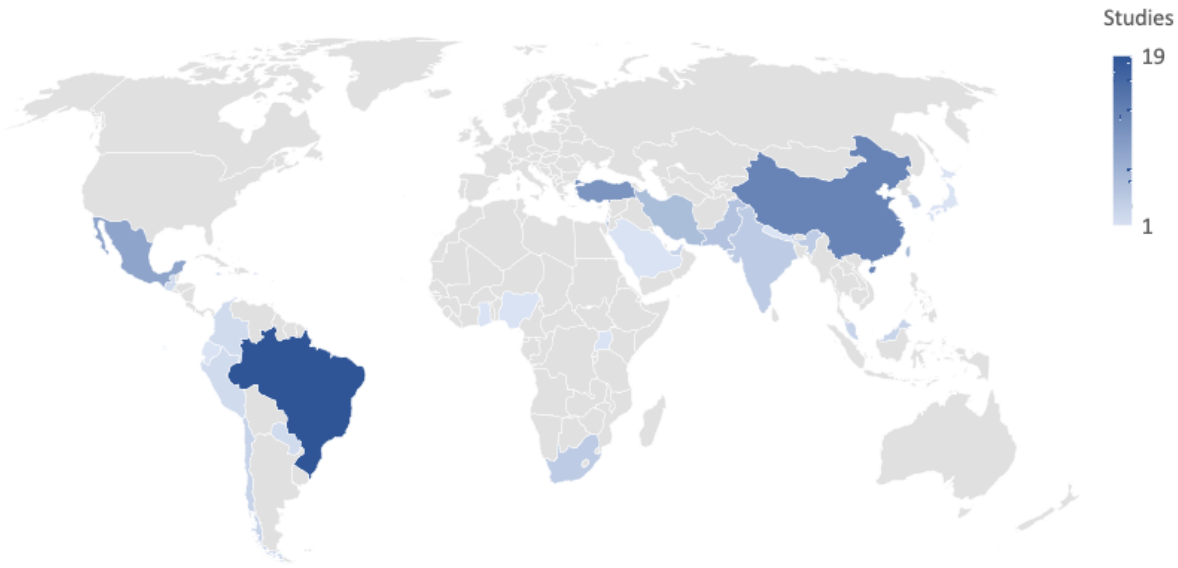
Characteristics of Sources

Tables in Appendix 2 provide specific characteristics of each of the included sources. Sources are sorted by region and then by country. The tables also include author(s); year of publication; setting of stigma and study; study category along with drivers, facilitators and outcomes; study population; study design; and main findings. Tables 1-8 with synthesized information from the main charts in Appendix 2 are presented here in the results section. Information presented includes population, setting, and study category.

Sources were found in 33 countries and territories spanning every UN SDG indicator region. This total does not include the individual countries that were part of the multi-country studies. Studies were considered multi-country if they contained three or more studies within the inclusion criteria and were in different regions. Studies that included two countries in the same region (Hong Kong and Taiwan, n=2) were counted once for that region but included in both country totals. Studies that included one country in the inclusion criteria and additional countries not in the inclusion criteria were included in the country/regional count of the country that was in the inclusion criteria. For example, a study[104] that included participants from India that also had participants from the US and the UK was included under India within Central and Southern Asia.

Brazil, China, and Turkey had the most sources with over 10 each. Six to 10 sources were found from Mexico, Hong Kong, Iran, Taiwan, and in the multi-country studies. Two to five studies were found in Israel, Pakistan, India, South Africa, South Korea, Chile, Jamaica, Malaysia, the United Arabs Emirates (UAE), Columbia, Guatemala, Paraguay, and Peru. Lastly, Brunei, Dominica, Ecuador, Ghana, Japan, Nepal, Nigeria, Puerto Rico, Samoa, Saudi Arabia, the Seychelles, Singapore, and Uganda all had one study. See Figure 4 for a map displaying the dispersion of sources identified in the review.

Figure 4: Dispersion of Sources Identified in Review



Sources were grouped into the SDG indicator regions[100] for succinct documentation and analysis as per the request of the WO. These are not intended to be used for comparative purposes between regions. Latin America and the Caribbean (n=45) and Eastern and South-Eastern Asia (n=34) were the most represented with over 60% of the sources coming from these two regions. North Africa and Western Asia (n=20) with Central and Southern Asia (n=16) had over 25% of the sources. Lastly, sources from Sub-Saharan Africa (n=8), Oceania (n=1), and multi-country (n=6) studies added up to just over 10% of the total. See Tables 2-8 for specific information on which countries belong to which regions and how many sources were found in each country.

Over 80% (n=106) of sources employed quantitative methods, and 102 of these were cross-sectional. An additional 20 (15.4%) sources used qualitative methods which included cross-sectional interviews, content analyses, case studies, and a prospective cohort study. Three sources used cross-sectional mixed methods, and there was one legal commentary. See Appendix 2 for further details.

Over half (n=67) of the sources were published in 2018 or later, with more than 20 published in both 2019 and 2020. Between 10-19 sources were published each year from 2014-2018,

and less than 10 sources were published each year from 2011-2013, not including 2021. See Appendix 2 for details.

Categories of Weight Stigma Research

Based on the results and methods used in the sources, seven main categories of WS research were identified. The terms of stigma practices, stigma experiences, manifestations, drivers, facilitators, and personal and organizational outcomes come from the Health and Discrimination Framework.[14] The synthesis of this information as well as population and setting can be found in Table 1. The seven categories include:

- **Stigma Practices (SP).** Part of the manifestations of WS, these sources focused on the attitudes, beliefs, phobias, stereotypes, and prejudices that research participants hold against people with obesity. For example, many sources examined healthcare professionals' prejudices towards people with obesity as exemplified in a study from Turkey conducted by Yılmaz & Ayhan.[105] These sources made up almost a third of the total (n=42, 32.3%) and often assess drivers of WS as well.
- **Stigmatizing Encounters (SE).** These sources were one of the three categories that assessed the manifestation of WS through stigma experiences, including discrimination or perceived stigmatization. Personal outcomes such as effects on mental health are often included in these sources. One example of an SE study from India showed that women with OW/OB experienced stigmatization, discrimination, body dissatisfaction, and other day-to-day problems and that these worsened with increased BMI.[106] SE was studied in 25 (19.2%) of the sources.
- **Bullying, Teasing, and Victimization (BTV).** These sources include BTV toward children and adolescents, although some studies take adult perceptions of BTV toward youth into account. Part of the manifestations of WS, it is the second type of stigma experience that will be discussed in this review. These sources often include not just the prevalence of BVT but also its effects, or outcomes, on those experiencing it, such as development of mental illness or eating disorders, as illustrated in a study[107] from Brazil that found that being teased by family members increased the risk of unhealthy weight control behaviors. The BVT category included 30 (23.1%) of the sources.
- **Internalization of Weight Bias (IWB).** This particular type of stigma toward oneself is the third category of stigma experiences in this review. Personal outcomes were often part of these sources as well. An example of an IWB study from Hong Kong

found that youth with overweight had higher levels of IWB and lower health-related quality of life than students without overweight.[108] It was the main category of WS research in 10 (7.6%) of the sources.

- **Questionnaire Development (QD).** These included sources (n=11, 8.5%) developing or adapting questionnaires to measure the manifestations of WS, as in a study from Sevincer et al[109] validating the Turkish version of the Weight Self-Stigma Questionnaire
- **Addressing Weight Stigma (AWS).** These sources (n = 6, 4.6%) included ways of addressing WS as well as evaluations of policies and laws. Examples of this were two studies from China investigating if mindfulness could help reduce the mental health effects of WS.[110,111]
- **Stigmatizing Images and Text (SIT).** Sources in this category (n=6, 4.6%) included media representations of people with obesity and/or their effects on WS, such as a study[112] examining the content of a newspaper from São Paulo, Brazil showing prejudices against people with obesity, especially women.

Table 1: Scoping Review Total Data Synthesis

Totals: Countries and Territories: 33+ Regions: 6 + Multi-Country studies Sources: 130								
	SP	**BTV**	**SE**	**IWB**	**QD**	**AWS**	**SIT**	**Totals**
Children/Adol Total	**6**	**28**	**2**	**6**	**2**	**1**	**1**	**46**
(with OW/OB)	-	-	-	(2)	-	(1)	-	(3)
Education	2	15	1	-	-	-	-	18
Family	-	3	-	-	-	-	-	3
Multiple	-	3	-	-	-	1	-	4
General/Research/Other	4	7	1	6	2	-	1	21
Adults Total	**36**	**1**	**19**	**3**	**9**	**3**	**1**	**72**
(with OW/OB)	(1)	-	(4)	(1)	(5)	(2)	-	(13)
(University Students)	(16)	-	(5)	(2)	(5)	(2)	(1)	(31)
Healthcare (Pre)	18(9)	-	5 (2)	-	3	1	-	27(11)
Education (Pre)	2 (2)	1	-	-	-	-	-	3 (2)
Employment/Finances	1	-	5	-	-	-	-	6
General/Research/Other	15	-	9	3	6	2	1	36
All Ages	**0**	**1**	**4**	**1**	**0**	**0**	**0**	**6**
Employment	-	-	2	-	-	-	-	2
Education	-	1	-	-	-	-	-	1
General/Research/Other	-	-	2	1	-	-	-	3
No Participants	**0**	**0**	**0**	**0**	**0**	**2**	**4**	**6**
Healthcare	-	-	-	-	-	1	1	2
Employment	-	-	-	-	-	1	-	1
General/Research/Other	-	-	-	-	-	-	3	3
Totals	**42**	**30**	**25**	**10**	**11**	**6**	**6**	**130**

The information presented in grey shows the number of studies done on each category of stigma per population grouping with specific sub-categories within the population groups in parentheses. Information presented in white pertains to the settings in which stigmatization was assessed in the main population groups with sub-categories of these settings in parenthesis. Numbers in parenthesis are not to be added together with the other counts to make the totals as they are already counted in the main categories.

Abbreviations: Adol: adolescents. SP: stigmatizing practices. BVT: bullying/teasing/victimization. SE: stigmatizing encounters. IWB: internalized weight bias. QD: questionnaire development. AWS: addressing weight stigma. SIT: stigmatizing images and texts

Populations and Settings

The sources are grouped into two main populations: children/adolescents and adults. Sources with children/adolescent participants made of just over one-third of the total (n=46). Over half (n=72) of the sources had adult participants, with over 40% of those done with university students. The remainder were on either adults and children/adolescents (n=6) or had no participants (n=6). Sources with no participants included commentaries, such as Viviers and Smit's[113] commentary on the legality of weight discrimination in South Africa, and studies of media depictions of WS, such as Ling and Don's[114] assessment of advertisements in Malaysia.

Within each age group, sources were further sorted into the category of WS researched and in which setting the stigmatization was found including education, family, healthcare, and employment/finances. Other than non-specific settings, the most common setting to study WS with children/adolescents was within education (n=19). Healthcare (n=27) was the most common in adults. Employment/finances was the most common setting of stigma in studies conducted with both children/adolescents and adults (n=2). Lastly, healthcare (n=2) was the most common setting for sources without participants.

Population/Setting and Category Intersections

Studies measuring the manifestations of weight stigma including both stigma practices and stigma experiences via stigma practices (SP), stigma encounters (SE), bullying/teasing/victimization (BTV), and internalized weight bias (IWB) were the most common. Within children/adolescents, the most common category of stigma researched was BTV with most BTV being experienced within the educational setting. When combining BTV, SE, and IWB, the vast majority of studies on children/adolescents explored experiences of weight stigma and relatively few were on stigma practices.

Studies that focus on the experiences of WS in children and adolescents were at times examining simply if children with OW/OB were bullied more or had more IWB than their peers without OW/OB, such as a study from the Seychelles[115] where both having OW and perceiving oneself as having OW increased the risk of being bullied in 11-17 year-olds, especially among boys. Others were more complex, in particular in examining the personal

outcomes of being bullied or otherwise stigmatized, such as mental health problems, eating disturbances, and poorer academic performance.

In contrast, stigma practice studies were the most common in adults even after combining all three forms of stigma experiences. Half of the studies on stigma practices were within the healthcare setting with studies on healthcare students making up half of those. Almost one-third of studies on adults were on stigmatizing experiences via SE, BTV, and IWB. Related to this, a small portion of the total studies investigated the specific form of stigma experienced through IWB, and these were done twice as often in adolescents/children than adults. A small number of sources investigated WS in employment/finances either with adults, all ages, or with no participants. All studies done with both adults and adolescents/children were related to experiences of weight stigma.

Many studies within healthcare examined the attitudes and beliefs towards people with obesity among many different groups of healthcare professionals and students with few examining the effects of WS on the care given. These healthcare professionals included nurses, dietitians, physicians, physical therapists, dentists, and social workers. In all but one study,[116] healthcare professionals from every medical specialty exhibited negative beliefs and attitudes towards people with obesity and/or stigmatized or discriminated against patients with obesity. Studies regarding SE showed that people with obesity experience harassment, discrimination, and stigmatization in many areas of society including healthcare, family, employment, and public spaces leading to such outcomes as poorer healthcare, eating disturbances, sleep disturbances, decreased levels of employment and wages, and poorer wellbeing overall, among others. There was, however, one study from Uganda[117] that found that having obesity increased financial wellbeing.

The remaining categories of WS researched, including questionnaire development (QD), addressing weight stigma (AWS), and stigmatizing images and texts (SIT), did not directly measure stigma experiences and practices, although all questionnaires were developed to measure the manifestations of stigma. Adults were most often used in the development of questionnaires. Sources that included no participants either focused on addressing weight stigma in healthcare or employment, or assessed stigmatizing images and texts, one of which was in healthcare.

Development of questionnaires were most often translations and adaptations of existing WS assessment tools made in ENAN countries. However, two studies from Pakistan developed new questionnaires. The questionnaire from Rafeh and Hanif[118] sought to develop a better assessment tool of perceived weight stigma, while the questionnaire developed by Kanwal and Naqvi[119] was designed to have a more culturally appropriate assessment tool for measuring attitudes towards and myths about obesity.

Sources looking to address weight stigma examined ways to improve care for people with obesity and confronted WS in healthcare policy and employment. Studies that examined stigmatizing images and texts mainly identified the existence of media that stigmatized people with obesity as well as the stigmatizing effects rendered by the promotion of thin ideals in media.

See Appendix 2 for further details.

Drivers, Facilitators, and Outcomes

At least 75% of sources from all regions addressed either drivers, facilitators, or outcomes. Many of these sources studied this in relation to manifestations of WS. Drivers were assessed in 39.2% (n=51) of the sources, and personal outcomes were assessed in 36.2% (n=47) of the sources. Facilitators, which measure cultural/societal factors or policies that contribute to weight stigma, were less common but were still taken into account in almost 20% (n=25) of the sources. The least common by far was organizational outcomes, with only four (3.1%) out of the 130 sources focusing on this.

Among others, drivers of WS that were investigated included factors such as SES, participants' BMI, participants' feelings about their own weight, exposure to people with obesity (such as having someone with obesity in the family), participants' attitudes toward obesity itself, and attitudes of participants' family members toward people with obesity. Facilitators of SP and/or stigmatizing experiences included such factors as media exposure, the general attitude toward people with obesity in the given community, policies and laws, and traditional vs modern lifestyles. Personal outcomes focused on the effects of WS on physical, mental, and social health including the development of depression, eating

disturbances, reduced quality of life, sleeping disturbances, isolation, reduced income, and weight-control behaviors. Lastly, organizational outcomes discussed ways to reduce WS for people through changes in practices and policies within healthcare settings and the law.

For further details, please see Appendix 2.

Results within Regions

Table 2: Latin America and the Caribbean Data Synthesis

Latin America & the Caribbean
Sources: n=45 (34.6%)
Countries/Territories Represented: n= 11 (33.3%)
Brazil (n=19), Chile (n= 3), Columbia (n=2, Dominica (n=1), Ecuador (n=1), Guatemala (n=2), Jamaica (n=3), Mexico (n=9), Paraguay, (n=2), Peru (n=2), Puerto Rico (n=1)

	SP	BTV	SE	IWB	QD	AWS	SIT	Totals
Adol/Children Total	**3**	**12**	**1**	**1**	**0**	**0**	**0**	**17**
(with OW/OB)	-	-	-	(1)	-	-	-	(1)
Education	-	8	-	-	-	-	-	8
Family	-	2	-	-	-	-	-	2
Multiple	-	2	-	-	-	-	-	2
General/Research/Other	3	-	1	1	-	-	-	5
Adults Total	**11**	**1**	**9**	**0**	**2**	**0**	**0**	**23**
(with OW/OB)	-	-	(3)	-	-	-	-	(3)
(University Students)	(5)	-	(1)	-	(2)	-	-	(8)
Healthcare (Pre)	4 (3)	-	2(1)	-	-	-	-	6(4)
Education (Pre)	1 (1)	1	-	-	-	-	-	2 (1)
Employment/Finances	1	-	2	--	-	-	-	3
General/Research/Other	5	-	5	-	2	-	-	12
All Ages	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**
Employment	-	-	1	-	-	-	-	1
General/Research/Other	-	-	1	-	-	-	-	1
No Participants	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**3**
Healthcare	-	-	-	-	-	1	1	2
Employment	-	-	-	-	-	-	-	-
General/Research/Other	-	-	-	-	-	-	1	1
Totals	**14**	**13**	**12**	**1**	**2**	**1**	**2**	**45**

The information presented in grey shows the number of studies done on each category of stigma per population grouping with specific sub-categories within the population groups in parentheses. Information presented in white pertains to the settings in which stigmatization was assessed in the main population groups with sub-categories of these settings in parenthesis. Numbers in parenthesis are not to be added together with the other counts to make the totals as they are already counted in the main categories.

Abbreviations: Adol: adolescents. SP: stigmatizing practices. BVT: bullying/teasing/victimization. SE: stigmatizing encounters. IWB: internalized weight bias. QD: questionnaire development. AWS: addressing weight stigma. SIT: stigmatizing images and texts

Latin America and the Caribbean

Over one-third (n=45) of all sources were found in Latin America and the Caribbean, more than any other region. Over 60% of studies were out of Brazil or Mexico with the other nine countries sourcing the remainder. See Appendix 2.1 for detailed information.

Participant and Study Category Highlights

Over half of the sources (n=23) included adult participants, 17 had children/adolescent participants, and two were on both adults and children/adolescents. The remaining three including no participants. One-quarter (n=4) of all studies specifically studying participants with OW/OB were in Latin America and the Caribbean, with three of those done with adults and one with children/adolescents. There was a relatively even split between the three most common study categories of SP (n=12), BTV (n=13), and SE (n=12). Almost 60% (n=26) of sources were on the experiences of stigma measured through SE, BTV, and IWB. While only two studies examined SIT, this represents one-third of the total sources found on SIT in this review.

Manifestations of WS

Studies on the manifestations of weight stigma which include practices and experiences of WS were by far the most common (n=40) in Latin America and the Caribbean. In addition, the QD studies were done to create or adapt questionnaires to measure WS manifestations in adults. Similar to the overall results, most studies done with children/adolescents were related to BTV (n=12) with two-thirds of those (n=8) set within education. Examples of BTV studies include investigations on prevalence and predictors of bullying among students, including those with OW/OB[120-123] as well as how this affects body satisfaction,[124,125] health-related quality of life,[126] and development of eating disorders,[127] among others.

With adults, there was almost an equal number of studies on stigma practices (n=11) and stigma experiences (BTV n=1 and SE n=9). Both practices and experiences of stigma were measured within healthcare, education, and employment/finances. Studies within healthcare were most often on the attitudes toward people with obesity held by dietitians[128] or nutrition students.[129,130] However there was a study unique to the entire review from de Araujo et al[131] that investigated the experiences of having OW/OB as a dietitian. One of the studies within

education focused on teachers' perceptions of bullying toward children with OW/OB.[132] The other was on attitudes of physical education students toward people with obesity.[133] Two of the studies related to employment and finances within this region were also unique to the review. Campos-Vazquez and Gonzalez[134] conducted one of only three experimental studies found in the review assessing how having a bigger body affects getting an interview when applying for a job in Mexico. The second, from Anderson-Fey et al,[135] found WS related to upward mobility in society, which was very specific to the context of their study in Jamaica.

Drivers, Facilitators, and Outcomes

A total of 35 (77.8%) of studies from Latin America and the Caribbean focused on drivers, facilitators, and/or outcomes. Of the studies that explored the manifestation WS (n=40), 12 also explored drivers, two explored facilitators, one explored drivers and facilitators, six explored drivers and personal outcomes, three explored facilitators and personal outcomes, and seven explored personal outcomes. In addition, both SIT studies and the AWS commentary examined WS facilitators.

Two unique drivers were investigated in this region including food insecurity[136] and the level of physical fitness among children and adolescents[137] and how these affected BTV. Most personal outcomes were related to psychosocial effects of WS, such as the study from Hackman et al[138] that found WS to be a psychosocial stressor much like poverty or domestic violence for women in Guatemala. Another one of the experimental studies found in this region was from O'Bara et al.[129] This study found that nutrition students treated people of different body sizes during an appointment, including how long the appointments were and treatment strategies employed. Lastly, two sources that examined the facilitation of WS were particularly interesting. The first, from Council and Placek,[139] examined how processes associated with globalization including access to thin-idealizing media from Western countries affected WS in different groups of women in rural Dominica. The second, from Paim & Kovaleski,[140] analyzed the Brazilian guidelines for obesity treatment and its inherent obesity bias.

Table 3: Eastern and South-Eastern Asia Data Synthesis

Eastern and South-Eastern Asia
Sources: n=34 (26.2%)
Countries/Territories Represented: n=8 (24.2%)
Brunei n=1, China n=13, Hong Kong n=5, Japan n=1, Malaysia n=3, Singapore n=1, South Korea n=4, Taiwan n=4, Taiwan & Hong Kong n=2

	SP	BTV	SE	IWB	QD	AWS	SIT	Totals
Adol/Children Total	**1**	**11**	**0**	**3**	**2**	**0**	**1**	**18**
(with OW/OB)	-	-	-	-	-	-	-	-
Education	-	5	-	-	-	-	-	5
Family	-	1	-	-	-	-	-	1
Multiple	-	-	-	-	-	-	-	-
General/Research/Other	1	5	-	3	2	-	1	12
Adults Total	**5**	**0**	**2**	**1**	**3**	**2**	**1**	**14**
(with OW/OB)	-	-	(1)	-	(1)	(2)	-	(4)
(University Students)	(2)	-	(1)	(1)	(1)	(2)	(1)	(7)
Healthcare (Pre)	3	-	-	-	1	-	-	4
Education (Pre)	-	-	-	-	-	-	-	-
Employment/Finances	-	-	-	-	-	-	-	-
General/Research/Other	2	-	2	1	2	2	1	10
All Ages	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**
Employment	-	-	-	-	-	-	-	-
General/Research/Other	-	-	-	1	-	-	-	1
No Participants	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**
Healthcare	-	-	-	-	-	-	-	-
Employment	-	-	-	-	-	-	-	-
General/Research/Other	-	-	-	-	-	-	1	1
Totals	**6**	**11**	**2**	**5**	**5**	**2**	**3**	**34**

The information presented in grey shows the number of studies done on each category of stigma per population grouping with specific sub-categories within the population groups in parentheses. Information presented in white pertains to the settings in which stigmatization was assessed in the main population groups with sub-categories of these settings in parenthesis. Numbers in parenthesis are not to be added together with the other counts to make the totals as they are already counted in the main categories.

Abbreviations: Adol: adolescents. SP: stigmatizing practices. BVT: bullying/teasing/victimization. SE: stigmatizing encounters. IWB: internalized weight bias. QD: questionnaire development. AWS: addressing weight stigma. SIT: stigmatizing images and texts

Eastern and South-Eastern Asia

The second greatest number of studies (n=34, 26.2%) were found in the region of Eastern and South-Eastern Asia. China had more than twice as many studies (n=13, 38.2%) as any other country or territory in the region with studies from Hong Kong, Taiwan, and South Korea making up an additional 44.1% (n=15) of the studies. The remaining six studies were done in four countries. See Appendix 2.2 for details.

Participant and Study Category Highlights

Over half of the sources (n=18) focused on children and adolescents, with another 14 studies including adults alone, one with all ages, and one had no participants. One-quarter (n=4) of all studies done specifically with participants with OW/OB were in this region, all of them with adult participants. Of note, one-third of all of the AWS studies, almost half (n=5) of the total QD studies, half (n=5) of the total IWB studies, and half of the total SIT studies were done in this region. In addition, Eastern and South-Eastern Asia was the only region to have QD for adolescents and children.

Manifestations of WS

Most of the studies (n=24) were on the manifestations of weight stigma (SP, BTV, SE, and IWB). When QD (n=2) that are made to examine manifestations are included, over 75% of studies include the manifestations of WS. Over half (n=18) of the studies examined experiences of stigma measured through SE, BTV, and IWB. Notably, half (n=3) of the total studies done on IWB in children/adolescents were in this region. BTV studies, all of them on children/adolescents, were the most common (n=11). Of those, almost half (n=5) were in an educational setting. SP was the most common study category in adults (n=5), with 60% (n=3) of those set in healthcare. Of these, one from Wang et al[116] found that the nurses in the study did *not* exhibit WS. Also of interest, Jetly et al[141] examined how a physicians' BMI affects patients' attitudes and adherence to medical advice.

Drivers, Facilitators, and Outcomes

Overall, 26 (76.5%) of the sources from Eastern and South-Eastern Asia focused on drivers, facilitators, or outcomes. Of the sources that explored the manifestation of WS (n=24), three (12.5%) examined drivers, one (4.2%) examined facilitators, five (20.8%) examined drivers

and personal outcomes, and 12 (50%) examined personal outcomes. Both AWS studies focused on personal outcomes. One of the three SIT studies examined facilitators, and two examined both drivers and facilitators.

Notably, 19 of the sources included an evaluation of personal outcomes, such as the development of eating disturbances, self-esteem, stress, and depression, and 18 out of the 19 sources examined this in children/adolescents or university students. See Appendix 2.2 for specific sources. Of these, two from Duan and Wang[110,111] examined how to improve these outcomes through mindfulness. Also interesting were two studies[142,143] involving social media use in relation to WS, with the one Taniguchi and Lee[142] gaining a cross-national perspective by comparing young Japanese females with young American females.

Table 4: Northern Africa and Western Asia Data Synthesis

North Africa and Western Asia
Sources: n=20 (15.4%)
Countries Represented: n=4 (12.1%)
Turkey: n=11, Israel: n=5, UAE n=3, Saudi Arabia n=1

	SP	BTV	SE	IWB	QD	AWS	SIT	Totals
Adol/Children Total	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
(with OW/OB)	-	-	-	-	-	-	-	-
Education	1	-	-	-	-	-	-	1
Family	-	-	-	-	-	-	-	-
Multiple	-	-	-	-	-	-	-	-
General/Research/Other	-	-	-	-	-	-	-	-
Adults Total	**11**	**0**	**3**	**1**	**2**	**1**	**0**	**18**
(with OW/OB)	-	-	-	-	(2)	-	-	(2)
(University Students)	(8)	-	(1)	(1)	-	-	-	(10)
Healthcare (Pre)	8 (5)	-	2	-	2	1	-	13 (5)
Education (Pre)	1(1)	-	-	-	-	-	-	1 (1)
Employment/Finances	-	-	-	-	-	-	-	-
General/Research/Other	2	-	1	1	-	-	-	4
All Ages	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**
Employment	-	-	-	-	-	-	-	-
Education	-	1	-	-	-	-	-	1
General/Research/Other	-	-	-	-	-	-	-	-
No Participants	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Healthcare	-	-	-	-	-	-	-	-
Employment	-	-	-	-	-	-	-	-
General/Research/Other	-	-	-	-	-	-	-	-
Totals	**12**	**1**	**3**	**1**	**2**	**1**	**0**	**20**

The information presented in grey shows the number of studies done on each category of stigma per population grouping with specific sub-categories within the population groups in parentheses. Information presented in white pertains to the settings in which stigmatization was assessed in the main population groups with sub-categories of these settings in parenthesis. Numbers in parenthesis are not to be added together with the other counts to make the totals as they are already counted in the main categories.

Abbreviations: Adol: adolescents. SP: stigmatizing practices. BVT: bullying/teasing/victimization. SE: stigmatizing encounters. IWB: internalized weight bias. QD: questionnaire development. AWS: addressing weight stigma. SIT: stigmatizing images and texts

Northern Africa and Western Asia

The region of Northern Africa and Western Asia included 20 (15.4%) sources from four countries. Over half of the sources were from Turkey (n=11, 55%), followed by Israel, the United Arab Emirates (UAE) and Saudi Arabia. See Appendix 2.3 for details.

Participants, Study Category Highlights, and Manifestations

All but two studies (n=18) were on adults, with university students (n=10) making up more than half of these. SP (n=12) as a whole was examined four times more than any other study category. Manifestations of stigma were measured in 17 of the studies, and all but one if QDs are included. Overall experiences of stigma, including BTV, SE, and IWB made of 25% (n=5) of the studies. There was one study on adolescents and children regarding SP, which was in an educational setting, and one study with all ages investigating bullying within education. The majority of studies (n=13) were in a healthcare setting, including eight in SP. These all examined attitudes and beliefs towards people with obesity, with one exception from Yildiz and Baysal[144] that also examined how pre-healthcare students experience WS. This region also had one of two studies in the review on SP found in pre-education students.[145] However, this study[145] examined the students' attitudes towards women with OW/OB rather than attitudes toward children/adolescents with OW/OB as one might expect.

Drivers, Facilitators, and Outcomes

Sixteen (80%) of the sources considered drivers, facilitators, and outcomes. Of the sources that explored the manifestations of stigma (n=17), 10 (58.8%) discussed drivers. There was also one (5.9%) source including each of the following: drivers and facilitators, drivers and personal outcomes, drivers and organizational outcomes, facilitators and personal outcomes, personal outcomes, and organizational outcomes. This means that the North Africa and West Asia region had two of the four sources that measured outcomes at an organizational level. One of these was a study from Altun Uğraş et al[146] that examined the ability to care for people with obesity at a hospital in Turkey. The second, from Hirschfeld-Dicker et al[147] was designed to identify appropriate communication to use when working with children/adolescents with OW/OB and their parents.

Table 5: Central and Southern Asia Data Synthesis

Central and Southern Asia
Sources: n=16 (12.3%)
Countries Represented: 4 (12.1%)
Iran n=6 Pakistan n=5 India n=4, Nepal n=1

	SP	BTV	SE	IWB	QD	AWS	SIT	Totals
Adol/Children Total	**1**	**2**	**0**	**2**	**0**	**1**	**0**	**6**
(with OW/OB)	-	-	-	(1)	-	(1)	-	(2)
Education	1	2	-	-	-	-	-	3
Family	-	-	-	-	-	-	-	-
Multiple	-	-	-	-	-	1	-	1
General/Research/Other	-	-	-	2	-	-	-	2
Adults Total	**4**	**0**	**2**	**1**	**2**	**0**	**0**	**9**
(with OW/OB)	-	-	-	(1)	(2)	-	-	(3)
(University Students)	(1)	-	(2)	-	(2)	-	-	(5)
Healthcare (Pre)	2(1)	-	1(1)	-	-	-	-	3(2)
Education (Pre)	-	-	-	-	-	-	-	-
Employment/Finances	-	-	-	-	-	-	-	-
General/Research/Other	2	-	1	1	2	-	-	6
All Ages	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**
Employment	-	-	-	-	-	-	-	-
General/Research/Other	-	-	1	-	-	-	-	1
No Participants	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Healthcare	-	-	-	-	-	-	-	-
Employment	-	-	-	-	-	-	-	-
General/Research/Other	-	-	-	-	-	-	-	-
Totals	**5**	**2**	**3**	**3**	**2**	**1**	**0**	**16**

The information presented in grey shows the number of studies done on each category of stigma per population grouping with specific sub-categories within the population groups in parentheses. Information presented in white pertains to the settings in which stigmatization was assessed in the main population groups with sub-categories of these settings in parenthesis. Numbers in parenthesis are not to be added together with the other counts to make the totals as they are already counted in the main categories.

Abbreviations: Adol: adolescents. SP: stigmatizing practices. BVT: bullying/teasing/victimization. SE: stigmatizing encounters. IWB: internalized weight bias. QD: questionnaire development. AWS: addressing weight stigma. SIT: stigmatizing images and texts

Central and Southern Asia

The region of Central and Southern Asia included 16 (12.3%) of the studies, representing four countries: Iran, Pakistan, India, and Nepal. See Appendix 2.4 for details.

Participants, Study Category Highlights, and Manifestations

Most studies included adults (n=10, 62.5%), with three of those on adults with OW/OB and one including participants of all ages. The remaining six studies were on children/adolescents with two on those specifically on those OW/OB. This makes Central and Southern Asia the region with the most studies specifically on participants who have OW/OB. Manifestations of WS were measured in 13 (81%) of the sources, and 15 if QDs are included. Of the 13, five were on SP, which was the most common study category. Three of these were in a healthcare setting. Unique to this review was the study from Awan et al[148] with the only study examining SP in the health sector of dentistry. Half (n=8) of all of the sources were on experiences of stigma.

Drivers, Facilitators, and Outcomes

Twelve (75%) of the studies considered drivers, facilitators and outcomes. Of those that assessed manifestations of weight stigma (n=13), five considered drivers, one considered drives and facilitators, and five considered personal outcomes. A study from Amini et al[149] focused both on facilitators and personal outcomes in an effort to learn more about how to improve the treatment that children/adolescents with OW/OB receive in Iran. Two other noteworthy studies from this region were done in India. One was from Dhillon and Dhawan[150] regarding the spread of WS from "the West"[150] due to rapid economic growth, changing body ideals, and the influence of media, among other factors. The other from Kersbergen & Robinson[104] was a study that included the US, the UK, and India that measured the "dehumanization"[104] of people with OW/OB.

Table 6: Sub-Saharan Africa Data Synthesis

Sub-Saharan Africa
Sources: n=8 (6.2%)
Countries Represented: 5 (15.2%)
Ghana n=1, Nigeria n=1, Seychelles n=1, South Africa: n= 4, and Uganda n=1

	SP	BTV	SE	IWB	QD	AWS	SIT	Totals
Adol/Children Total	**0**	**2**	**1**	**0**	**0**	**0**	**0**	**3**
(with OW/OB)	-	-	-	-	-	-	-	-
Education	-	1	1	-	-	-	-	2
Family	-	-	-	-	-	-	-	-
Multiple								
General/Research/Other	-	1	-	-	-	-	-	1
Adults Total	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**3**
(with OW/OB)	(1)	-	-	-	-	-	-	(1)
(University Students)	-	-	-	-	-	-	-	-
Healthcare (Pre)	-	-	-	-	-	-	-	-
Education (Pre)	-	-	-	-	-	-	-	-
Employment/Finances	-	-	2	-	-	-	-	2
General/Research/Other	1	-	-	-	-	-	-	1
All Ages	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**
Employment	-	-	1	-	-	-	-	1
General/Research/Other	-	-	-	-	-	-	-	-
No Participants	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**
Healthcare	-	-	-	-	-	-	-	-
Employment	-	-	-	-	-	1	-	1
General/Research/Other	-	-	-	-	-	-	-	-
Totals	**1**	**2**	**4**	**0**	**0**	**1**	**0**	**8**

The information presented in grey shows the number of studies done on each category of stigma per population grouping with specific sub-categories within the population groups in parentheses. Information presented in white pertains to the settings in which stigmatization was assessed in the main population groups with sub-categories of these settings in parenthesis. Numbers in parenthesis are not to be added together with the other counts to make the totals as they are already counted in the main categories.

Abbreviations: Adol: adolescents. SP: stigmatizing practices. BVT: bullying/teasing/victimization. SE: stigmatizing encounters. IWB: internalized weight bias. QD: questionnaire development. AWS: addressing weight stigma. SIT: stigmatizing images and texts

Sub-Saharan Africa

The Sub-Saharan Africa region included 8 (6.2%) of the sources representing 5 countries. Half of the sources (n=4) were from South Africa, with Ghana, Nigeria, Seychelles, and Uganda all having one source each. See Appendix 2.5 for details.

Participants, Study Category Highlights, and Manifestations

There was an equal number of studies (n=3 each) on adults and children/adolescents. Both studies on children/adolescents and examined experiences of WS. Half of all studies (n=4) were on SE, and 75% of those were specifically in employment/financial settings. There was one study on AWB which was also in employment/finances, making half of the studies in the Sub-Saharan African region related to employment/finance. This is also one-third of the total studies done on employment/finances in the review. Two of these sources from South Africa examined employment differences for people with OW/OB based on national data surveys.[151,152] The source that examined AWS was a legal commentary from Viviers & Smit[113] that discussed how discrimination against people with OW/OB in employment should be illegal in South Africa, the only source in the review to bring this topic to light. Lastly, a study from Uganda by Macchi[117] examined employment/finances that showed *positive* discrimination for people with OW/OB, meaning it was financially beneficial to have OW/OB.

Drivers, Facilitators, and Outcomes

Six (75%) of the sources considered drivers, facilitators, or outcomes. Of those examining manifestations of WS, one examined drivers, one examined drivers and facilitators, two examined drivers and personal outcomes, one examined personal outcomes, and one examined facilitators or organizational outcomes. The study on AWS examined facilitators and organizational outcomes.

Table 7: Oceania Data Synthesis

Oceania (not including Australia and New Zealand) **Sources:** n=1 (0.8%) **Countries Represented:** n=1 (3%) Samoa n=1								
	SP	**BTV**	**SE**	**IWB**	**QD**	**AWS**	**SIT**	**Totals**
Adol/Children Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
(with OW/OB)	-	-	-	-	-	-		-
Education	-	-	-	-	-	-	-	-
Family	-	-	-	-	-	-	-	-
Multiple	-	-	-	-	-	-	-	-
General/Research/Other	-	-	-	-	-	-	-	-
Adults Total	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
(with OW/OB)	-	-	-	-	-	-	-	-
(University Students)	-	-	-	-	-	-	-	-
Healthcare (Pre)	1	-	-	-	-	-	-	1
Education (Pre)	-	-	-	-	-	-	-	-
Employment/Finances	-	-	-	-	-	-	-	-
General/Research/Other	-	-	-	-	-	-	-	-
All Ages	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Employment	-	-	-	-	-	-	-	-
General/Research/Other	-	-	-	-	-	-	-	-
No Participants	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Healthcare	-	-	-	-	-	-	-	-
Employment	-	-	-	-	-	-	-	-
General/Research/Other	-	-	-	-	-	-	-	-
Totals	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**

The information presented in grey shows the number of studies done on each category of stigma per population grouping with specific sub-categories within the population groups in parentheses. Information presented in white pertains to the settings in which stigmatization was assessed in the main population groups with sub-categories of these settings in parenthesis. Numbers in parenthesis are not to be added together with the other counts to make the totals as they are already counted in the main categories.

Abbreviations: Adol: adolescents. SP: stigmatizing practices. BVT: bullying/teasing/victimization. SE: stigmatizing encounters. IWB: internalized weight bias. QD: questionnaire development. AWS: addressing weight stigma. SIT: stigmatizing images and texts

Oceania

One study (0.8%) from Oceania out of Samoa was found. It examined SP within the healthcare system and addressed both the facilitators and personal outcomes of WS. This study by Hardin[153] was interesting in that it both shows that physicians did not stigmatize patients with obesity yet perhaps there was discrimination in putting the responsibility of weight control on the patient. See Appendix 2.6 for details.

Table 8: Multi-Country Data Synthesis

Multi-Country **Sources:** n=6 (4.6%)								
	SP	**BTV**	**SE**	**IWB**	**QD**	**AWS**	**SIT**	**Totals**
Adolescents/Children	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**
(with OW/OB)	-	-	-	-	-	-		
Education	-	-	-	-	-	-	-	
Family	-	-	-	-	-	-	-	
Multiple								
General/Research/Other	-	1	-	-	-	-	-	1
Adults Total	**3**	**0**	**1**	**0**	**0**	**0**	**0**	**4**
(with OW/OB)	-	-	-	-	-	-	-	-
(University Students)	-	-	-	-	-	-	-	-
Healthcare (Pre)	-	-	-	-	-	-	-	-
Education (Pre)	-	-	-	-	-	-	-	-
Employment/Finances	-	-	1	-	-	-	-	1
General/Research/Other	3	-	-	-	-	-	-	3
All Ages	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Employment	-	-	-	-	-	-	-	-
General/Research/Other	-	-	-	-	-	-	-	-
No Participants	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**
Healthcare	-	-	-	-	-	-	-	-
Employment	-	-	-	-	-	-	-	-
General/Research/Other	-	-	-	-	-	-	1	1
Totals	**3**	**1**	**1**	**0**	**0**	**0**	**1**	**6**

The information presented in grey shows the number of studies done on each category of stigma per population grouping with specific sub-categories within the population groups in parentheses. Information presented in white pertains to the settings in which stigmatization was assessed in the main population groups with sub-categories of these settings in parenthesis. Numbers in parenthesis are not to be added together with the other counts to make the totals as they are already counted in the main categories.

Abbreviations: Adol: adolescents. SP: stigmatizing practices. BVT: bullying/teasing/victimization. SE: stigmatizing encounters. IWB: internalized weight bias. QD: questionnaire development. AWS: addressing weight stigma. SIT: stigmatizing images and texts

Multi-Country

Six (4.6%) of the studies included more than two countries in more than one region within the inclusion criteria. See Appendix 2.7 for details.

Participants, Study Category Highlights, and Manifestations

Adults were participants in four (66.7%) of the studies with three investigating SP and one investigating SE in employment/finances. One of the studies, by Koyanagi et al,[154] was on adolescents and children regarding BTV and included a sample of 114,240 adolescents from 41 LMICs. All but one source examined manifestations of WS. The source had no participants from Sievert et al[155] examined stigmatizing images in media within different countries

Drivers, Facilitators, and Outcomes

Four of the five studies on manifestations of WS examined facilitators of WS as did the SIT study. The study from Clément et al[156] investigated how OW/OB affect employment in three countries – Mexico, India, and China – each in different stages of nutrition transition. Both multi-country studies including Brewis as the main author investigated WS in light of global influencers on body norms.[157,158] The final source in this group came from Marini et al[93] and investigated WS in relation to BMIs of individuals and BMIs of countries.

Other Findings

Studies that Did not Find OW/OB Stigma

In the review, four (3.1%) out of 130 sources found a clear lack of WS against people with OW/OB. This included two studies regarding BTV in children/adolescents in Latin America and the Caribbean, one from Brazil[121] and one from Peru.[123] One study was on SP in nurses from Eastern and South-Eastern Asia in China.[116] The final[117] was in Sub-Saharan Africa in Uganda regarding WS in loan officers and community members. In addition, all of the multi-country studies demonstrated mixed results depending on the location.

Differences between Sexes: Intersecting Stigmas

While not a focus of this review, there were a couple of points related to weight bias research and differences between males and females to bring attention to since stigmatization based on sex/gender could be a stigma that intersects with WS. While the majority of studies had both male and female participants, there were 25 (19.2%) that specifically had only female participants. These included 13 from Latin America and the Caribbean, four each from Central and Southern Asia and Eastern and South-Eastern Asia, three from Northern Africa and Western Asia, and one from and multi-country sources. There were also 25 (19.2%) studies that found differences between males and females related to the experiences and practices of WS. These included 14 (56%) from Latin America and the Caribbean, five (16%) in Eastern and South-Eastern Asia, two (8%) from Sub-Saharan Africa and multi-country sources, and one (4%) each from Central and Southern Asia and North Africa and Western Asia. See main findings in Appendix 2 for details.

Funding

Information for funding was extracted from sources with full articles available in English. Of these 111 sources, 42 (37.8%) stated that funding was received. Of the 19 sources that had abstracts only, 15 were in Latin America and the Caribbean. The other regions all had one source with only an abstract except for Oceania and the multi-country sources which were all full text. Of the remaining full-text sources, the following received funding per region:

- 12 (40.0%) in Latin America and the Caribbean
- 20 (60.6%) in Eastern and South-Eastern Asia
- Two (10.5%) in Northern Africa and Western Asia
- Two (13.3%) in Central and Southern Asia
- One (14.3%) in Sub-Saharan Africa
- One (100.0%) in Oceania
- Four (66.7%) in Multi-Country

See Appendix 2 for details.

Diversity in Methods

There was a large amount of diversity in the methods employed to measure WS and associated factors. There were over 100 different questionnaires employed in studies found in this review measuring not only WS but also its drivers/facilitators, mediating or moderating factors, and outcomes. The majority of these were adapted from previously validated questionnaires, but some were created for the studies themselves based on previous literature and study designs. Contact the thesis author for specific information regarding study methods.

Diversity in Publication

Similar to methods, there was also great diversity in which journals the sources in the review were published. The 127 sources that were published (the remaining three were theses), were published in 100 different journals. These included international, regional, and national journals that had many different foci including weight and eating disorders, public health, obesity, psychology/psychiatry, nutrition, nursing, medicine, pediatric health, economics, and anthropology.

Discussion

This review shows that researchers around the world have investigated weight bias and stigma in every non-ENAN region, with 130 sources identified in 33 countries and territories. While research was not evenly distributed across or within regions, with Latin America and the Caribbean and Eastern and South-Eastern Asia containing 60% of the sources in the review, this signifies that WS is indeed an emerging global health concern and not unique to the ENAN countries. Similar to ENAN countries, WS was not only investigated in a general sense but within specific settings including education, healthcare, and employment/finances, and throughout the lifespan including children, adolescents and adults. The main categories of WS research included seven foci:

- Stigmatizing practices (SP) such as attitudes and beliefs towards people with obesity (PwO)

- Stigmatizing Encounters (SE) including stigmatizing experiences such as discrimination or prejudice.
- Bullying/Teasing/Victimization (BTV) are specific types of stigmatizing experiences most often measured in children and adolescents.
- Internalized Weight Bias (IWB) is another form of stigmatizing experience toward oneself.
- Questionnaire Development (QD) to measure manifestations of WS.
- Addressing Weight Stigma (AWS) in policies or treatments.
- Stigmatizing Images and Texts (SIT) in media.

In addition, factors that drive or facilitate WS as well as the outcomes of WS were also investigated. These findings are consistent with the general focus of WS research throughout the ENAN countries.[27]

Based on the number of sources found, the field of WS research appears to be just emerging in the non-ENAN regions, compared to the ENAN regions where this field has been rapidly evolving over the last decade. To compare with the 130 sources found in the review, one of the main WS researchers from the US, Dr Rebecca Puhl, authored or co-authored nearly 100 WS research articles during that same period. As another example, in developing the Canadian obesity practice guidelines,[27] which included a weight bias chapter and evidence-based recommendations for the first time in 2020, the team reviewed 150 articles that were published between 2006-2018 just in the areas of weight bias in health care settings alone, the vast majority of which came from the ENAN regions. (X. Ramos Salas PhD, interview, 10 June 2021)

To explore this review from a global public health perspective, the Health and Discrimination Framework[14] will be used, beginning with the area where most of the sources lie: the manifestations of stigma including experiences (SE, BTV, and IWB) and practices (SP). The discussion will then move on to drivers, facilitators, and outcomes. As mentioned previously, outcomes and impacts have been put together given that some outcomes, such as quality of life, are also impacts. Next, implications of these findings followed by research gaps and opportunities will be presented. Lastly, methodological strengths, limitations, and reflections will be reviewed.

Manifestations of Weight Stigma

This review shows that manifestations of WS, both in how people feel about PwO and how people experience WS, are being measured in various ways throughout the world. In children and adolescents, this was most often measured through the stigmatizing experiences of bullying, teasing, or victimization in an educational setting. For adults, stigmatizing practices within the healthcare setting were the most common. However, stigmatizing experiences were also measured, particularly within healthcare and employment/financial settings. These are similar to the studies done within the ENAN countries, although the depth and breadth of research within the ENAN is larger, as expected based on the amount of research done there.[27,159] This will be discussed further in the section on research gaps and opportunities.

While many regions had some range when it came to the manifestations studied, North Africa and Western Asia stood out as mainly focusing on SP, especially as exhibited through healthcare students and professionals. See Appendix 2.3. Latin America and the Caribbean also stood out in the breadth of their categories of WS researched, populations, and settings. However, this may be expected considering that most of the sources came from this region and within one country (Brazil). See Appendix 2.1.

Drivers, Facilitators, and Outcomes

The factors that generate WS and the effects of being stigmatized were often included in the research found, including those that measured manifestations of WS. While less common, some sources examined both the factors that produce WS as well as the effects of WS. Most often, personal or interpersonal drivers – such as attitudes towards the disease of obesity, and personal outcomes – such as lower self-esteem, body dissatisfaction, or eating disorders, were assessed. Comparatively few examined the broader structural or cultural facilitators of WS, and only four focused on organizational outcomes or ways to influence outcomes at an organizational level. This is very similar to studies from the ENAN countries, although, similar to manifestations, the depth and breadth are less expansive in the sources found in the review.[27,29] This will also be addressed in the section on research gaps and opportunities.

Something that became evident during the review process was the great amount of attention given to the personal outcomes of WS in Eastern and South-Eastern Asia in children, adolescents, and young adults. See Appendix 2.2. In addition, it was not surprising to find

that the multi-country studies, more than any other regional group, discussed the facilitators of WS since they were often comparing influencers on cultural norms or differences between countries. See Appendix 2.7.

Reflections on Findings

As discussed in the previous research section and exemplified in the sources of this review, WS has many negative impacts on physical, mental, and social health and wellbeing. When it comes to children and adolescents, it is concerning that weight-based bullying toward those with OW/OB was so widespread in the review, including Oceania when including countries from the multi-country sources. The effects of bullying, regardless of the reason, has lasting negative consequences for its victims.[160] Being bullied due to OW/OB puts victims at risk of such personal outcomes as depression, low self-esteem, troubles in school, sleep disturbances, body dissatisfaction, and eating disturbances (i.e. eating disorders) as seen in both the previous research in the review sources themselves. In addition, not only are young people with OW/OB being bullied and teased directly, but these negative interactions are also possibly reinforced when various media platforms promote the thin ideal. While the exposure to the facilitator of thin-idealizing media in different parts of the world was not part of this review, it is concerning in the perpetuation of WS as discussed previously.

While adults also experience negative outcomes due to WS, including but not limited to disrupted eating patterns, social isolation, mental and physical health challenges, and negative employment outcomes, as evidenced in this review and studies from the ENAN regions, what stood out in this review was that half of the sources that included adults were concerning stigmatizing practices. A reason for this could be that the studies looking at SP tended to be more simplistic than examining the effects and experiences of weight stigma, and study participants such as medical professionals and university students are perhaps more easily accessible than finding participants who are willing to discuss being stigmatized.

What is troubling about the SP sources is not necessarily the number of studies done but that negative attitudes toward PwO were prevalent in studies done across every region, including Oceania when the multi-country sources are taken into account. What is causing this and what can be done? As discussed in the previous research section, there is evidence that WS has increased in the ENAN regions over time. While this review did not find any sources

indicating trends in WS in non-ENAN regions, this is something that should be investigated in the future along with other factors that contribute to WS; the effects WS has on people in various settings including healthcare, work, employment, education, and others; and what can be done about it. This will be discussed further in the research gaps and opportunities section.

Lastly, it is promising that WS research is of interest in the non-ENAN regions, as evidenced by the development of questionnaires and the growing body of literature in the last few years; that there is recognition of the need to address WS at personal and organizational levels; and that certain facilitators of WS such as images, texts, and changes in society – such as body norms – that can perpetuate WS are being examined. While these sources were not the bulk of the literature found, it provides evidence of movement toward research that goes beyond the prevalence of WS into why/how it is happening and what to do about it.

Implications

These findings illustrate that WS is a global health issue that societies around the world experience. While it may not be true that all communities in every country have or will develop stigmatization of people living with obesity, it cannot be ruled out, as exemplified in particular by the multi-country studies and those out of Nigeria,[161] Ghana,[162] Guatemala,[136,138] Dominica,[139] and Jamaica,[135,163,164] where one may not expect to find WS based on traditional body norms. Even as far back as 2011, researchers Dhillon and Dhawan[150] saw that the influences of Western ideals (i.e., ideals held within the ENAN countries) were reaching India, provoking stigmatization against people living with obesity. This finding presents an opportunity for public health officials and obesity associations to be proactive in preventing and addressing and the stigmatization of people living with obesity. For example, policies protecting both adults and children from being discriminated against based on weight – both underweight and OW/OB – could be adopted regardless of current prevalence of WS. Future studies should investigate how countries could learn from the experiences of other ENAN and non-ENAN countries to prevent the enactment and outcomes of WS.

As discussed previously, WS can impact individuals' physical, mental, and social health, as well as and social outcomes, including various social determinants of health (SDH) such as education and employment.[29] Being bullied, regardless of the reason, often has negative

consequences that follow the victims for life such as poor mental health, social anxiety, depression, and difficulties in school which could then affect the ability to get a good job and earn a good wage.[160] Experiencing WS in employment can then impact individuals' financial opportunities and SES status. As a strong SDH, having a lower SES can have a ripple effect through living conditions or access to food that result in an even lower quality of health.[71] Furthermore, a health system that stigmatizes people that have the disease of obesity is unlikely to provide available, acceptable, accessible, quality care and uphold their right to health.[53] As per the UN Sustainable Development Goals,[54] universal health coverage should include access to health promotion, disease prevention, and treatment. These specific health goals cannot be achieved without enabling people to have access to the health services they need. Should WS be allowed to fester and grow globally, it will surely hinder the attainment of these goals.

Interventions

These implications highlight the need for interventions to prevent and reduce WS at every level. Many of the sources indicate bullying among young people in educational settings and stigma within healthcare settings as two of the main areas to include interventions. Within schools and even universities, anti-bullying policies as well as educating and training teachers and administrators about weight-based bullying and teasing could be a first step in addressing this issue. This is also something that needs to be done in the ENAN countries where, as mentioned earlier, only three states in the US had weight listed as a risk factor for being bullied in their anti-bullying laws as of 2017.[77] The impact of WS in children and adolescents is also something that the healthcare system should be aware of considering the health outcomes faced by many young people who are stigmatized based on their weight.

Healthcare systems could develop education and policies related to both obesity as a disease and WS. These education interventions could specifically discuss the impact of WS on individuals' health outcomes, healthcare access, and quality rather than simply bringing awareness to WS as such. Hearing about experiences of WS from patients or colleagues could be included in these interventions to help build empathy towards PwO.[51] In a real-life example of this, as a dietitian working closely with PwO for many years, the author of this thesis learned of numerous instances in which her patients were discriminated against or stigmatized in their lives. Patients would often admit their worry in needing to see yet another

dietitian given the bad experiences they had previously had. These encounters helped to build understanding and empathy with patients with obesity and what they encounter in day to day lives.

Patient outcomes due to WS among healthcare professionals, such as healthcare utilization or differential treatment of PwO, were rarely examined in the sources in this review. However, the review did provide much evidence of WS among healthcare professionals. Given the widespread negative attitudes towards and beliefs about people with obesity among healthcare professionals in the review, it would not be improbable to assume these the negative attitudes can affect the healthcare received in non-ENAN countries based on the research from ENAN countries discussed in the previous research. Therefore, efforts to improve these negative attitudes, build empathy for patients with obesity, and create an understanding of obesity as a disease could make a considerable difference in the care that patients with obesity receive.[27,29,51]

That being said, interventions to address WS and improve healthcare for patients will look different depending on the setting and the types of resources that are available in respective healthcare systems. For example, societies that have established WS among healthcare professionals would likely need to adopt different tactics to address the differential treatment of patients with obesity than societies where bigger bodies have traditionally been celebrated and perhaps seen as a sign of health – as in one of the studies from Jamaica[163] – whose main concern regarding equal treatment of PwO may be establishing how to address the issue of weight as a health concern without creating WS. It would also be helpful for healthcare systems and societies that are similar to each other to learn from each other in how to address WS. As an example from the ENAN regions, Sweden is using Canada's guidelines for the treatment of obesity,[27] which includes WS policies, in the formation of the Swedish national obesity treatment guidelines. (X. Ramos Salas PhD, interview, 08 June 2021)

In addition, media or stigmatizing images and texts as facilitators of WS could be addressed. Changing the narrative toward PwO could make a difference in how they are treated, as has been seen in other stigmatized diseases such as HIV/AIDS or substance abuse.[165] For example, schools and healthcare organizations could adopt the use of non-stigmatizing, body inclusive images to avoid further perpetuation of WS. Governments and public health

agencies could include positive images of people of all shapes in sizes in their propaganda, much like Obesity Canada[27] and Health Regardless of Size[166] (*Hälsa Oberoende av Storlek)* in Sweden have done. An example of this in advertising from the ENAN countries are the Dove and Aerie brands' body-inclusive campaigns which demonstrated a potential for media to improve weight-biased attitudes.[167]

Finally, there is a need for interventions to prevent and reduce WS at organizational levels through laws and policies protecting PwO from stigmatization and discrimination. A goal of WS experts in the ENAN countries as well,[168] overarching strategies will be essential to initiating equality in society by giving people who are discriminated against based on their weight protection and ways to defend themselves if they do experience discrimination. Specific policies around this in employment could also be adopted.[67] For example, certain societies or occupations expect that applicants include a picture with their resume, as exemplified in the study from Campos-Vazquez and Gonzalez[134] in Mexico. By omitting pictures or other means that create opportunities for people to be judged on their weight rather than their competencies, equality in employment could start to improve. An example from the ENAN countries is an initiative within the UK to address WS in employment from the Institute for Employment Studies.[169] While it does not create policies and has not been in place long enough to examine an effect, it does provide evidence about WS in the UK and gives recommendations related to WS for employers, employees, the government, healthcare professionals, and the media.[169]

Research Gaps and Opportunities

Need for More Research Overall

This review illuminated many research gaps and opportunities. The most obvious research gap is not what is being studied per se but rather that there are insufficient studies in non-ENAN countries in general. Given that WS research seems to be in its early stages in these areas, this is not surprising. Even some of the countries with the largest number of studies have large gaps in what areas they are researching. This is likely related to what factors researchers or funding organizations in certain countries/regions see as the biggest concerns when it comes to WS, whether it be employment in South Africa, health outcomes in young

people in Southern and Southeastern Asia, or WS held by healthcare professionals in Northern Africa and Western Asia. While it is important to have studies on specific populations and settings that are of particular concern, they cannot be generalized to the general population, This reveals a need for research that includes both additional specific groups and the populace in general.

Related to this is the inability to generalize the findings from one country to another. Given the vast differences within regions, one cannot assume that WS looks the same – or even exists – from one part of a region to another or even from one part of a country to another. For example, while over one-third of the sources in the review were from Latin America and the Caribbean, most of those came out of Brazil and Mexico, and one cannot assume that what is happening in Brazil or Mexico applies to other areas of the region. These large gaps, along with the difference in publication volume when compared to the ENAN countries, shows that WS research appears to be in the early stages in most of the non-ENAN countries/regions based on the search criteria, but the growing number of studies on WS in recent years indicates that there is increasing interest in this topic. In addition, the number of questionnaires being translated and developed for various settings to study WS is evidence of growing interest as well. This is an important finding since weight bias measures tailored for specific populations, languages, and sociocultural contexts are important in understanding the WS phenomena in specific areas.[170]

As touched on above, the lack of sources overall as well as the increase in the number of WS studies being done in the non-ENAN regions in the last few years demonstrates that WS itself may be a new phenomenon in some countries/regions. It also indicates that there is likely a need to build capacity for doing WS research in non-ENAN countries. One way to start this capacity building is through providing funding for WS research. Only 40% of the sources in our review stated that the researchers received funding, with only Eastern and South-Eastern Asia and the multi-country studies having more than 60% of the research funded. The regions of Northern Africa and Western Asia, Central and Southern Asia, and Sub-Saharan Africa all had less than 15% of their research funded. This shows that there is a need to invest in WS research in the non-ENAN regions to address the global health concern of WS. That being said, it will be important that the funding influence the research as little as possible. As

in, if funding is received from an outside organization – such as one from the ENAN regions – local priorities regarding said research should be respected.

Specificity in Research

Provided that many countries and regions seem to be in the early stages of WS research, broadening and deepening the research will be necessary to address WS. This is especially true in areas that have already established that WS is manifesting in society but perhaps have not yet researched the drivers, facilitators, and personal and organizational outcomes of WS. To go back to Northern Africa and Western Asia, there is research on stigmatizing practices in healthcare students and professionals. To go further with this, it would be important to know if and how this affects patients concerning their access to quality healthcare, their health outcomes, and/or their utilization of healthcare services. In South Africa, there is evidence of discrimination in employment. Is this the same throughout South Africa? Does this vary between locations, ethnicity/race, gender, age, employment sector, etc.? Does the discrimination in employment have other health impacts due to associations with lower SES? Are other SDH are affected by this? In what other populations and settings is WS occurring in South Africa, and what is facilitating and driving that stigma?

These questions could go on no matter the country, region, or topic. The main takeaway here is to remember that there are many intricacies when it comes to how WS develops, manifests, and affects people depending on who and where they are, and this needs to be reflected in the research. Two very good examples of this that were highlighted earlier from the Caribbean islands of Dominica and Jamaica. In Dominica,[139] determinates such as age, traditionality, and media exposure were examined to see which factors were correlated with having WS. In Jamaica, where bigger bodies are often preferred, there are still limits to how big a body can preferably be[163] and in which parts of society it is okay to have a bigger body based on one's aspirations.[135]

International Studies

A third gap was the lack of international studies. Similar to the study from Dominica[139] that examined differences in WS within a society, examining it across societies will also be important, especially in the consideration of the drivers and facilitators of WS. The study

from Clément et al[156] was a notable example of this where they compared middle-income countries in different stages of the nutrition transition and the effects that having OW/OB had on hourly wages. These broader, international studies can also help give researchers a sense of where they need to focus their efforts. For example, with only one study from Oceania in the review,[153] which showed mixed results regarding WS, one may assume WS is not a concern in that part of the world. However, two of the multi-country studies provided evidence of WS in Oceania, one from Brewis et al[158] that examined the "cultural globalization"[158] of obesity and WS in adults and one from Koyanagi et al[154] that examined weight-based bullying. By having these larger international studies, areas and populations can be illuminated as potential sources of WS that may not otherwise be identified.

While this review found a total of 11 sources (six in the multi-country group and five others) that included more than one country, representing 8.5% of the total, only 1% of WS research worldwide includes international studies, making these types of investigations a priority for researchers in the ENAN regions as well.[168] In line with the SDG of creating global partnerships,[54] these studies could be done in teams that include researchers representing the different groups within the study to help create collaborative, global efforts to address this global health concern. Teams that only include members from outside the country of study will likely not have the same insights and worldview as someone from the place of study which will greatly influence the type of studies done as well as the interpretation of the findings. Therefore, studies should be driven by researchers from the countries/societies in the study as much as possible. An example of a study including a multinational team from the review was the study from Marini et al[93] that examined WS related to BMI at individual and national levels. In addition to multinational teams, including researchers within different disciplines could help create insightful, well-rounded studies that address the many drivers, facilitators, manifestations, and outcomes of WS.

Study Design

Another research gap is the lack of diversity in study design. Over three-quarters of the sources employed cross-sectional quantitative methods. While this provides a foundation for WS research, the next step would be to include more longitudinal/cohort studies as well as both qualitative and mixed methods.

Longitudinal studies are necessary to determine the long-term impacts of WS on individuals and society; changes in WS over time including the drivers, facilitators, manifestations and outcomes of those changes; and the effects policy or legal changes related to WS. These types of studies were rarely represented in the review with only two longitudinal studies[123,171] and one cohort[172] study in all. This is not unexpected considering many of these countries seem to be just starting to establish research into WS and how it manifests in society. There are also very few of these types of studies within the ENAN countries which do have long-established evidence of WS.[173] Longitudinal studies would be especially interesting to start now in countries that have little to no established levels of WS to follow trends in drivers, facilitators, manifestations, personal and organizational outcomes, and overall impacts on individuals and society. For example, more studies examining how changes in societies – such as economic growth, nutrition transitions, and the globalization of thin body ideals – affect WS would help determine how to address drivers and facilitators of WS.

In addition to longitudinal studies, including more qualitative and mixed methods would help researchers understand the experiences and perspectives of people living with obesity. For example, Rivera-Torres et al[174] employed qualitative methods to understand the experiences of adolescents going through a weight loss program and how they want to be supported in order to help improve the care they received. Qualitative and mixed methods could also be utilized to understand why people stigmatize those living with obesity and what factors help reduce WS. Gaining perspectives from those who stigmatize and those who experience WS would be particularly important in societies where WS is a new phenomenon to help understand what cultural influences, such as changes to body size ideals, lead to WS.

Participant Samples and Settings

While many regions included sources with a variety of ages, making sure research is representing a comprehensive view of WS is needed. Of the sources with adult participants, over 40% studied had university students, representing a very small window of adulthood. While the findings in these studies were not necessarily generalized to the entire population, it still represents that there is a need for a broader scope of study participants. This includes research with broader age ranges, including geriatric populations which were lacking in the review, and studies specifically on participants who have OW/OB, especially in qualitative studies. Additional groups that were not studied in any of the sources – nor are they studied

in the ENAN countries with any regularity based on findings in database searches – are the policymakers, whether in government, healthcare, education, or other areas. They are the ones who can make big impacts on WS in society overall through the passage of laws and policies that protect people with obesity from discrimination. As mentioned before, even with public support, anti-discrimination policies toward people living with obesity are incredibly rare.[67,77] This indicates that weight stigmatization held by the people responsible for these laws and policies should be studied and addressed.

The settings in which WS is studied could also be broader. Almost 40% of studies with adults focused on the healthcare setting, and over 40% of studies with children/adolescents focused on WS in an educational setting. While these are important areas, there are many other settings in which people experience WS. One setting, in particular, that was in this review but perhaps was underrepresented was WS within the home. A recent study comparing six countries within the ENAN regions from Pearl et al[175] found that over 75% of participants from all countries had experienced WS from family members. Given this finding, WS in the home should also be included in research in non-ENAN countries along with continued research in additional areas such as employment and education including higher education. Of course, stigma does not just exist in these specific settings, so research including the general population or in other relevant settings is also important.

Intersecting Stigmas

While this was not a focus of the review, determining if stigma affects groups of people differently is key in determining actions to take against it, especially if those groups are already stigmatized for other reasons. In the framework, this is known as "stigma 'marking'"[14] or interesting stigmas. Intersecting stigmas could include but are not limited to sex/gender, sexual orientation or identity, class, race/ethnicity, religion, and occupation. In the results, it was briefly mentioned that some studies in the review showed different manifestations of WS between males and females, both in children/adolescents and adults.

One study on BTV from Brazil[171] showed that boys were more likely to be bullied due to OW/OB but not girls, while another study from Brazil[122] showed that girls were more affected by weight-related BTV than boys. For adults, a study from Mexico in 2019[176] showed that women had a wage penalty as BMI increased but not men, while one of the

multi-country studies from 2020[156] demonstrated that both men and women in Mexico experienced *positive* effects in employment for having obesity. These studies exemplify the complexly of WS and its manifestations in society and the importance of study design and nuisances in determining which groups are affected by WS. Studies that include intersecting stigmas beyond sex/gender are also necessary. An example of this from the ENAN countries is a study from the US[177] that showed for "light-skinned Black Americans"[177] having obesity reduced their income similar to white Americans whereas reduced incomes for "medium-and dark-skinned Black Americans"[177] with obesity was not shown.

Ways of Knowing

Lastly, how WS is known about and conceptualized worldwide is of great interest to the members of the WO weight bias working group. (X. Ramos Salas PhD, interview, 08 June 2021) The number and variety of journals that the review sources were published in along with the variety of research methods/questionnaires used in the studies provide evidence that although these sources have all assessed WS, the literature is not homogenous and is exploring WS in many ways. Some research questions to ask related to this are: why is there such diversity in publication sources, are researchers having difficulty publishing about topics related to WS or in certain journals, what are barriers to publication, etc.? It is known among members of the WO weight bias working group that it is difficult for researchers outside of the ENAN regions to get their work published, and this alone illustrates the limited access to knowledge about WS that is available and should be addressed in future research. (X. Ramos Salas PhD, interview, 08 June 2021)

Similar to this are issues related to the methodologies and questionnaires used to ascertain knowledge about WS: should new questionnaires be developed for societies/countries and languages rather than adapting the ones that were created in ENAN countries, and how do the current methodologies affect the conceptualization of weight stigma around the world? Other factors that could be investigated related to influences on the ways of knowing about WS include funding sources (or lack thereof) and author origins and educational background, among others.

There are many more research gaps and opportunities that could be explored here. The main implication from the review of these 130 sources is that WS exists around the world, even in

places where it may not be expected. To address this as a global health priority, simple studies regarding the manifestations of WS are not enough. The intricacies of WS and its manifestations, including drivers, facilitators, intersecting stigmas, and personal and organizational outcomes, need to be examined in multiple areas of society and throughout the lifespan to understand this public health issue and address not only the individual but also the societal determinates and outcomes of WS.

Strengths, Limitations, and Reflections

Strengths

The methodology for this scoping review was based on the well-established PRISMA-ScR[98] methods and those presented in the framework by Arksey and O'Malley.[99] This step-by-step, reproducible method increased the reliability of this review.[178] There were also two evaluators for the data extraction which strengthened the approach by reducing selection and researcher bias which increased validity.[178] One evaluator (the author) extracted and synthesized the data given that this was a thesis rather than a study conducted by a team of researchers, while the second evaluator confirmed at least 10% of the extractions and was consulted for any ambiguities in how to interpret/treat the data. Another strength of this thesis was the ability to have experts from the World Obesity Federation inform this research and provide insights to ensure its relevance in their efforts to address WS globally.

Limitations

There were two main limitations in this review. One was that only sources in English could be included, and the second was that both the author and the second reviewer were from the ENAN regions. As discussed in the section on research gaps and opportunities, it would have been preferable to include a multilingual team from countries within the inclusion criteria to evaluate sources in many different languages and from journals and grey literature not found in the databases searched. Because of this, more sources were probably available on WS throughout the non-ENAN regions that were not accessible in this review. However, as a scoping review, this thesis provides a foundation for building future research initiatives. Having researchers from around the world could also have helped identify WS through a different epistemological view. For example, something that may seem to stigmatize within

the ENAN countries, such as public spaces having undersized chairs,[2] may not be seen as stigmatizing in areas within the inclusion criteria, and vice versa. By having researchers from each country/region in the inclusion criteria, sources that were not explicitly about WS but that would be stigmatizing in their respective research settings could have possibly been included, thus expanding the inclusion criteria to incorporate a broader range of sources. However, because both reviewers were from ENAN countries, sources were only chosen that explicitly discussed their findings related to weight stigma, bias, or discrimination.

One other factor that some may say is a limitation is that two databases (SCOPUS and PsychInfo) were searched for literature rather than three or more. While searching additional databases could have yielded more sources, when searching through a third database (PubMed) after the two initial searches, additional material was not found. The databases chosen also provided a wide range of sources from different disciplines which strengthened the search strategy rather than using databases that mainly contain similar subjects. An additional reason why certain databases, such as PubMed and Google Scholar, were not used was the inability to refine searches yielding tens of thousands of articles given the broad subject of the review. This decision was supported by the librarians at the University of Gothenburg Biomedical Library. Lastly, the limitation of time also affected the ability to search additional databases. However, even given more time, additional searches were not necessarily needed to meet the aims of this review. This will be discussed further in the reflections.

Reflections

ENAN Perspective

Even though steps were taken to reduce an ENAN vs non-ENAN perspective, one cannot ignore that the ways of knowing about WS, at least in this review, are inherently influenced by an epistemological view highly influenced by the ENAN regions. The author herself and second reviewer both come from ENAN countries and educational backgrounds. The methods used in the sources found in the review were often developed by researchers in the ENAN regions that, even when adapted to a new population, will still have a specific take on what it means to stigmatize people with obesity. The databases used to do the literature search are based in ENAN countries and may contain a limited number of journals from the countries in the inclusion criteria, and some countries/researchers are more likely to publish

in the journals accessible in these databases than others. As touched on in the research gaps and opportunities section, there may be difficulties in publishing in journals that were included in the databases searched for various reasons, such as proficiency in English.

The ways that stigma was conceptualized and the theoretical framework used to discuss the findings were also formed from researchers from the ENAN regions. Even the delineation of the regions could create a ENAN vs non-ENAN viewpoint. These factors all influenced the way in which this review acquired and analyzed the knowledge of WS from the non-ENAN regions.

That being said, as with any review, there are limits to what literature one is able to access, and all researchers will come into a study with their own background, ways of understanding, and tools for analysis that they have gained through their education and experiences. This scoping review was intended to assess the extent and scope of research into WS in the non-ENAN countries with the tools available for this thesis with steps taken to avoid researcher and selection bias included.

The findings of this review and how to move forward in addressing WS will be discussed with the members of the WO's weight bias working group who has members from every SDG region. By including researchers and WS experts from around the world in the formation of a global framework to address WS, this review can be used as a platform to build upon with the knowledge that more WS literature and ways of knowing may be accessible through the cooperation of the WO weight bias working group members.

General Reflections

There are several reflections to the methodology of this study that are not necessarily strengths or limitations but more a result of the goals of this review. Given the broad aims of this thesis, a scoping review rather than a systematic review was chosen to acquire a broad rather than a specific sense of what is happening with WS research in the non-ENAN countries/regions.[99] While search terms could have included individual country names, reference and cited by lists of sources could have been searched, and more databases could have been utilized – including some based in countries within the inclusion criteria – this review was not intended to find all literature related to WS in non-ENAN countries but to get

a general picture of the extent and focus of the WS research being done. This was accomplished with the methodology used and will help provide insight into the global trends in WS research to inform WO's weight bias working group of the work that needs to be done in addressing WS worldwide.

Conclusion

This thesis aimed to determine the extent and focus of existing weight bias and stigma literature in areas outside of Europe, North America, Australia, and New Zealand, and to identify and map the available evidence. Although once mainly considered an issue of the ENAN countries, this review identified 130 WS research articles and papers spanning 33 countries and territories, representing every non-ENAN region. The extent of research varied between countries and regions, with over 60% of the sources coming from Latin America and the Caribbean and Eastern and South-Eastern Asia with Brazil and China being the top two countries in which sources were found. Study populations were of all ages including children, adolescents, and adults, and WS was researched in multiple settings including healthcare, education, and employment/finances. While the manifestations, drivers, and personal outcomes were commonly encompassed by the sources in this review, the focus of studies varied greatly within and between regions. Moreover, this thesis has shown that research concerning facilitators of WS was less commonly assessed than either drivers or personal outcomes, and organizational outcomes were rarely addressed. These findings indicate that many research gaps throughout the non-ENAN regions need to be filled to address this global health concern.

Much like the prevalence of obesity has increased in the non-ENAN countries, the findings in this review indicate that WS exists globally, and to ignore this issue risks perpetuating health and social inequalities. There is a growing body of research into WS in non-ENAN countries which presumably illustrates increasing awareness of WS and its negative impacts although funding for this seems to be lacking. Given the vast research gaps that need to be filled and a lack of funding from country to country and region to region, it would be beneficial to employ collective, global efforts that are driven by local experts and researchers in addressing this global health concern rather than take it on as individual countries or regions. This will also help to create an understanding of WS that transcends borders and can

be applicable to societies around the world in order to allow for a more unified front in addressing the global health concern of weight stigma.

References

1. Ramos Salas X, Jewell J, Breda J. *Weight bias and obestiy stigma: considerations for the WHO European Region.* Copenhagen: WHO Regional Office for Europe; No Year.
2. Obesity Canada. Weight bias. https://obesitycanada.ca/weight-bias/. Published 2020. Accessed 18 March 2021.
3. Marcelin JR, Siraj DS, Victor R, Kotadia S, Maldonado YA. The Impact of Unconscious Bias in Healthcare: How to Recognize and Mitigate It. *The Journal of Infectious Diseases.* 2019;220(Supplement_2):S62-S73, doi:10.1093/infdis/jiz214.
4. Greenwald AG, McGhee DE, Schwartz JLK. Measuring individual differences in implicit cognition: The implicit association test. *J Pers Soc Psychol.* 1998;74(6):1464-1480, doi:10.1037/0022-3514.74.6.1464.
5. Harrison LE, White BAA, Hawrylak K, McIntosh D. Explicit bias among fourth-year medical students. *Proc (Bayl Univ Med Cent).* 2019;32(1):50-53, doi:10.1080/08998280.2018.1519519.
6. Crandall CS. Prejudice against fat people: ideology and self-interest. *J Pers Soc Psychol.* 1994;66(5):882-894, doi:10.1037//0022-3514.66.5.882.
7. Allison DB, Basile VC, Yuker HE. The measurement of attitudes toward and beliefs about obese persons. *Int J Eat Disord.* 1991;10(5):599-607, doi:10.1002/1098-108X(199109)10:5<599::AID-EAT2260100512>3.0.CO;2-#.
8. Lewis RJ, Cash TF, Jacobi L, Bubb-Lewis C. Prejudice toward fat people: the development and validation of the antifat attitudes test. *Obes Res.* 1997;5(4):297-307, doi:10.1002/j.1550-8528.1997.tb00555.x.
9. Centers for Disease Control and Prevention. Healthy weight, nutrition, and physical activity https://www.cdc.gov/healthyweight/assessing/bmi/index.html. Published 2020. Accessed 12 May 2021.
10. World Health Organization. Obesity and Overweight. https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight. Published 2020. Accessed 21 Jan 2021.
11. Lim JU, Lee JH, Kim JS, et al. Comparison of World Health Organization and Asia-Pacific body mass index classifications in COPD patients. *Int J Chron Obstruct Pulmon Dis* 2017;12:2465-2475, doi:10.2147/COPD.S141295.
12. Centers for Disease Control and Prevention. Overweight and obesity: Defining childhood obesity https://www.cdc.gov/obesity/childhood/defining.html. Published 2018. Accessed 11 May 2021.
13. Popkin BM. Global nutrition dynamics: the world is shifting rapidly toward a diet linked with noncommunicable diseases. *Am J Clin Nutr.* 2006;84(2):289-298, doi:10.1093/ajcn/84.1.289.
14. Stangl AL, Earnshaw VA, Logie CH, et al. The Health Stigma and Discrimination Framework: a global, crosscutting framework to inform research, intervention development, and policy on health-related stigmas. *BMC Medicine.* 2019;17(1):31, doi:10.1186/s12916-019-1271-3.
15. Ford ND, Patel SA, Narayan KM. Obesity in low- and middle-income countries: Burden, drivers, and emerging challenges. *Annu Rev Public Health.* 2017;38:145-164, doi:10.1146/annurev-publhealth-031816-044604.
16. Templin T, Cravo Oliveira Hashiguchi T, Thomson B, Dieleman J, Bendavid E. The overweight and obesity transition from the wealthy to the poor in low- and middle-income countries: A survey of household data from 103 countries. *PLoS Med.* 2019;16(11):e1002968, doi:10.1371/journal.pmed.1002968.

17. Dai H, Alsalhe TA, Chalghaf N, Riccò M, Bragazzi NL, Wu J. The global burden of disease attributable to high body mass index in 195 countries and territories, 1990-2017: An analysis of the Global Burden of Disease Study. *PLoS medicine.* 2020;17(7):e1003198-e1003198, doi:10.1371/journal.pmed.1003198.
18. Bray GA, Kim KK, Wilding JPH. Obesity: a chronic relapsing progressive disease process. A position statement of the World Obesity Federation. *Obes Rev.* 2017;18(7):715-723, doi:10.1111/obr.12551.
19. James WPT. WHO recognition of the global obesity epidemic. *Int J Obes.* 2008;32(7):S120-S126, doi:10.1038/ijo.2008.247.
20. Kyle TK, Dhurandhar EJ, Allison DB. Regarding obesity as a disease: Evolving policies and their implications. *Endocrinol Metab Clin North Am.* 2016;45(3):511-520, doi:10.1016/j.ecl.2016.04.004.
21. Canadian Medical Association. Obesity and Canada: Causes, consequences, and the way forward. https://policybase.cma.ca/en/permalink/policy11540#_ga=2.68781777.1181478497.1623138422-1108071373.1623138422. Published 2015. Accessed.
22. Ramos Salas X, Forhan M, Caulfield T, Sharma AM, Raine K. A critical analysis of obesity prevention policies and strategies. *Can J Public Health.* 2017;108(5):e598-e608, doi:10.17269/CJPH.108.6044.
23. Andreyeva T, Puhl RM, Brownell KD. Changes in perceived weight discrimination among Americans, 1995-1996 through 2004-2006. *Obesity (Silver Spring).* 2008;16(5):1129-1134, doi:10.1038/oby.2008.35.
24. Latner JD, O'Brien KS, Durso LE, Brinkman LA, MacDonald T. Weighing obesity stigma: the relative strength of different forms of bias. *Int J Obes (Lond).* 2008;32(7):1145-1152, doi:10.1038/ijo.2008.53.
25. Puhl RM, Andreyeva T, Brownell KD. Perceptions of weight discrimination: prevalence and comparison to race and gender discrimination in America. *Int J Obes (Lond).* 2008;32(6):992-1000, doi:10.1038/ijo.2008.22.
26. Spahlholz J, Baer N, König HH, Riedel-Heller SG, Luck-Sikorski C. Obesity and discrimination - a systematic review and meta-analysis of observational studies. *Obes Rev.* 2016;17(1):43-55, doi:10.1111/obr.12343.
27. Kirk S, Ramos Salas X, Alberga A, Russel-Mayhew S. Canadian adult obesity clinical practice guidelines: Reducing weight bias, stigma, and discrimination in obesity management, practice, and policy. https://obesitycanada.ca/guidelines/weightbias. Published 2020. Accessed 1 February 2021.
28. Brewis A, SturtzSreetharan C, Wutich A. Obesity stigma as a globalizing health challenge. *Global Health.* 2018;14(1):20, doi:10.1186/s12992-018-0337-x.
29. Rubino F, Puhl RM, Cummings DE, et al. Joint international consensus statement for ending stigma of obesity. *Nat Med.* 2020;26(4):485-497, doi:10.1038/s41591-020-0803-x.
30. Puhl RM, Heuer CA. Obesity stigma: important considerations for public health. *Am J Public Health.* 2010;100(6):1019-1028, doi:10.2105/AJPH.2009.159491.
31. Robert E, Hajizadeh M, El-Bialy R, Bidisha SH. Globalization and the diffusion of ideas: Why we should acknowledge the roots of mainstream ideas in global health. *Int J Health Policy Manag.* 2014;3(1):7-9, doi:10.15171/ijhpm.2014.55.
32. Hruby A, Hu FB. The Epidemiology of Obesity: A Big Picture. *Pharmacoeconomics.* 2015;33(7):673-689, doi:10.1007/s40273-014-0243-x.
33. Fox A, Feng W, Asal V. What is driving global obesity trends? Globalization or "modernization"? *Global Health.* 2019;15(1):32, doi:10.1186/s12992-019-0457-y.

34. Swami V. Cultural influences on body size ideals. *Eur Psychol.* 2015;1:1-8, doi:10.1027/1016-9040/a000150.
35. Rodgers RF. The role of the "Healthy Weight" discourse in body image and eating concerns: An extension of sociocultural theory. *Eat Behav.* 2016;22:194-198, doi:10.1016/j.eatbeh.2016.06.004.
36. Goffman E. *Stigma: Notes on the Management of Spoiled Identity.* Englewood Cliffs, New Jersey Prentice-Hall; 1963.
37. Tomiyama AJ, Carr D, Granberg EM, et al. How and why weight stigma drives the obesity 'epidemic' and harms health. *BMC Medicine.* 2018;16(1):123, doi:10.1186/s12916-018-1116-5.
38. Bahreynian M, Qorbani M, Khaniabadi BM, et al. Association between obesity and parental weight status in children and adolescents. *J Clin Res Pediatr Endocrinol.* 2017;9(2):111-117, doi:10.4274/jcrpe.3790.
39. Fuemmeler BF, Lovelady CA, Zucker NL, Østbye T. Parental obesity moderates the relationship between childhood appetitive traits and weight. *Obesity (Silver Spring, Md).* 2013;21(4):815-823, doi:10.1002/oby.20144.
40. Puhl RM, Himmelstein MS, Quinn DM. Internalizing weight stigma: Prevalence and sociodemographic considerations in US adults. *Obesity (Silver Spring).* 2018;26(1):167-175, doi:10.1002/oby.22029.
41. Pearl RL. Weight Bias and Stigma: Public Health Implications and Structural Solutions. *Soc Issues Policy Rev.* 2018;12(1):146-182, doi:https://doi.org/10.1111/sipr.12043.
42. Pont SJ, Puhl R, Cook SR, Slusser W. Stigma experienced by children and adolescents with obesity. *Pediatrics.* 2017;140(6), doi:10.1542/peds.2017-3034.
43. Hatzenbuehler ML, Phelan JC, Link BG. Stigma as a fundamental cause of population health inequalities. *Am J Public Health.* 2013;103(5):813-821, doi:10.2105/ajph.2012.301069.
44. Puhl RM, Himmelstein MS, Pearl RL. Weight stigma as a psychosocial contributor to obesity. *Am Psychol.* 2020;75(2):274-289, doi:10.1037/amp0000538.
45. Tomiyama AJ, Finch LE, Belsky AC, et al. Weight bias in 2001 versus 2013: Contradictory attitudes among obesity researchers and health professionals. *Obesity (Silver Spring).* 2015;23(1):46-53, doi:10.1002/oby.20910.
46. Phelan SM, Burgess DJ, Yeazel MW, Hellerstedt WL, Griffin JM, van Ryn M. Impact of weight bias and stigma on quality of care and outcomes for patients with obesity. *Obes Rev.* 2015;16(4):319-326, doi:10.1111/obr.12266.
47. Swift JA, Hanlon S, El-Redy L, Puhl RM, Glazebrook C. Weight bias among UK trainee dietitians, doctors, nurses and nutritionists. *J Hum Nutr Diet.* 2013;26(4):395-402, doi:10.1111/jhn.12019.
48. FitzGerald C, Hurst S. Implicit bias in healthcare professionals: a systematic review. *BMC Med Ethics.* 2017;18(1):19, doi:10.1186/s12910-017-0179-8.
49. Panza GA, Armstrong LE, Taylor BA, Puhl RM, Livingston J, Pescatello LS. Weight bias among exercise and nutrition professionals: a systematic review. *Obes Rev.* 2018;19(11):1492-1503, doi:10.1111/obr.12743.
50. Nong P, Raj M, Creary M, Kardia SLR, Platt JE. Patient-reported experiences of discrimination in the US health care system. *JAMA Netw Open.* 2020;3(12):e2029650, doi:10.1001/jamanetworkopen.2020.29650.
51. Alberga AS, Edache IY, Forhan M, Russell-Mayhew S. Weight bias and health care utilization: a scoping review. *Prim Health Care Res Dev.* 2019;20:e116, doi:10.1017/s1463423619000227.

52. World Health Organization. Social determinants of health. https://www.who.int/health-topics/social-determinants-of-health#tab=tab_1. Published 2021. Accessed 03 May 2021.
53. Office of the United Nations High Commissioner for Human Rights. *The right to health: Fact sheet no. 31.* Geneva: United Nations; 2008.
54. United Nations Department of Economic and Social Affairs. The 17 goals. Sustainable Development Web site. https://sdgs.un.org/goals. Published No Date. Accessed 11 May 2021.
55. O'Keeffe M, Flint SW, Watts K, Rubino F. Knowledge gaps and weight stigma shape attitudes toward obesity. *Lancet Diabetes Endocrinol.* 2020;8(5):363-365, doi:10.1016/s2213-8587(20)30073-5.
56. Puhl RM, Phelan SM, Nadglowski J, Kyle TK. Overcoming weight bias in the management of patients with diabetes and obesity. *Clin Diabetes.* 2016;34(1):44-50, doi:10.2337/diaclin.34.1.44.
57. Lee M, Ata RN, Brannick MT. Malleability of weight-biased attitudes and beliefs: a meta-analysis of weight bias reduction interventions. *Body image.* 2014;11(3):251-259.
58. Alberga AS, Pickering BJ, Alix Hayden K, et al. Weight bias reduction in health professionals: a systematic review. *Clin Obes.* 2016;6(3):175-188, doi:10.1111/cob.12147.
59. Nagpal TS, Liu RH, Gaudet L, Cook JL, Adamo KB. Summarizing recommendations to eliminate weight stigma in prenatal health care settings: A scoping review. *Patient Educ Couns.* 2020;103(11):2214-2223, doi:10.1016/j.pec.2020.06.017.
60. Nowrouzi-Kia B, McDougall A, Gohar B, Nowrouz-Kia B, Casole J. Weight bias in the workplace: A literature review. *Occup Med Health Aff.* 2015;3:2, doi:10.4172/2329-6879.1000206.
61. Giel KE, Thiel A, Teufel M, Mayer J, Zipfel S. Weight bias in work settings - a qualitative review. *Obes Facts.* 2010;3(1):33-40, doi:10.1159/000276992.
62. Rudolph CW, Wells CL, Weller MD, Baltes BB. A meta-analysis of empirical studies of weight-based bias in the workplace. *J Vocat Behav.* 2009;74(1):1-10, doi:10.1016/j.jvb.2008.09.008.
63. Agerström J, Rooth DO. The role of automatic obesity stereotypes in real hiring discrimination. *J Appl Psychol.* 2011;96(4):790-805, doi:10.1037/a0021594.
64. Flint SW, Čadek M, Codreanu SC, Ivić V, Zomer C, Gomoiu A. Obesity discrimination in the recruitment process: "You're not hired!". *Front Psychol.* 2016;7:647, doi:10.3389/fpsyg.2016.00647.
65. Tyrrell J, Jones SE, Beaumont R, et al. Height, body mass index, and socioeconomic status: mendelian randomisation study in UK Biobank. *Bmj.* 2016;352:i582, doi:10.1136/bmj.i582.
66. Flint SW, Snook J. Obesity and discrimination: the next 'big issue'? *Int J Discrim Law.* 2014;14(3):183-193.
67. Puhl RM, Latner JD, O'Brien KS, Luedicke J, Danielsdottir S, Salas XR. Potential policies and laws to prohibit weight discrimination: Public views from 4 countries. *Milbank Q.* 2015;93(4):691-731, doi:10.1111/1468-0009.12162.
68. Hilbert A, Hübner C, Schmutzer G, Danielsdottir S, Brähler E, Puhl R. Public support for weight-related antidiscrimination laws and policies. *Obes facts.* 2017;10(2):101-111, doi:10.1159/000456012.
69. McCall K. Current trends in combating weight discrimination in the workplace. https://www.fisherphillips.com/news-insights/current-trends-in-combating-weight-discrimination-in-the-workplace.html. Published 2020. Accessed 03 May 2021.

70. de Beco G. Is obesity a disability? The definition of disability by the Court of Justice of the European Union and its consequences for the application of EU anti-discrimination Law. *Columbia J Eur Law.* 2016;22(2):381-402.
71. Jacobsen KH. *Introduction to Global Health.* 3rd ed: Burlington: Jones & Bartlett Learning, LLC; 2018.
72. Flaskerud JH, DeLilly CR. Social determinants of health status. *Issues Ment Health Nurs.* 2012;33(7):494-497, doi:10.3109/01612840.2012.662581.
73. Nutter S, Ireland A, Alberga AS, et al. Weight bias in educational settings: A systematic review. *Curr Obes Rep.* 2019;8(2):185-200, doi:10.1007/s13679-019-00330-8.
74. Puhl RM, Peterson JL, Luedicke J. Weight-based victimization: bullying experiences of weight loss treatment-seeking youth. *Pediatrics.* 2013;131(1):e1-9, doi:10.1542/peds.2012-1106.
75. Finn KE, Seymour CM, Phillips AE. Weight bias and grading among middle and high school teachers. *Br J Educ Psychol.* 2020;90(3):635-647, doi:10.1111/bjep.12322.
76. Burmeister JM, Kiefner AE, Carels RA, Musher-Eizenman DR. Weight bias in graduate school admissions. *Obesity (Silver Spring).* 2013;21(5):918-920, doi:10.1002/oby.20171.
77. Puhl RM, Suh Y, Li X. Improving anti-bullying laws and policies to protect youth from weight-based victimization: parental support for action. *Pediatr Obes.* 2017;12(2):e14-e19, doi:10.1111/ijpo.12129.
78. Vartanian LR, Porter AM. Weight stigma and eating behavior: A review of the literature. *Appetite.* 2016;102:3-14, doi:10.1016/j.appet.2016.01.034.
79. Hatzenbuehler ML, Keyes KM, Hasin DS. Associations between perceived weight discrimination and the prevalence of psychiatric disorders in the general population. *Obesity (Silver Spring, Md).* 2009;17(11):2033-2039, doi:10.1038/oby.2009.131.
80. Alimoradi Z, Golboni F, Griffiths MD, Broström A, Lin CY, Pakpour AH. Weight-related stigma and psychological distress: A systematic review and meta-analysis. *Clin Nutr.* 2020;39(7):2001-2013, doi:10.1016/j.clnu.2019.10.016.
81. Owino VO. Challenges and opportunities to tackle the rising prevalence of diet-related non-communicable diseases in Africa. *Proc Nutr Soc.* 2019;78(4):506-512, doi:10.1017/s0029665118002823.
82. Popkin BM. The nutrition transition: an overview of world patterns of change. *Nutr Rev.* 2004;62(7 Pt 2):S140-143, doi:10.1111/j.1753-4887.2004.tb00084.x.
83. Bosu WK. An overview of the nutrition transition in West Africa: implications for non-communicable diseases. *Proc Nutr Soc.* 2015;74(4):466-477, doi:10.1017/s0029665114001669.
84. Nnyepi MS, Gwisai N, Lekgoa M, Seru T. Evidence of nutrition transition in Southern Africa. *Proc Nutr Soc.* 2015;74(4):478-486, doi:10.1017/s0029665115000051.
85. Oyewole OE, Atinmo T. Nutrition transition and chronic diseases in Nigeria. *Proc Nutr Soc.* 2015;74(4):460-465, doi:10.1017/s0029665115002402.
86. Popkin BM, Reardon T. Obesity and the food system transformation in Latin America. *Obes Rev.* 2018;19(8):1028-1064, doi:10.1111/obr.12694.
87. Jayawardena R, Ranasinghe P, Wijayabandara M, Hills AP, Misra A. Nutrition transition and obesity among teenagers and young adults in South Asia. *Curr Diabetes Rev.* 2017;13(5):444-451, doi:10.2174/1573399812666160808100211.
88. Mistry SK, Puthussery S. Risk factors of overweight and obesity in childhood and adolescence in South Asian countries: a systematic review of the evidence. *Public Health.* 2015;129(3):200-209, doi:10.1016/j.puhe.2014.12.004.

89. Kinge JM, Strand BH, Vollset SE, Skirbekk V. Educational inequalities in obesity and gross domestic product: evidence from 70 countries. *J Epidemiol Community Health.* 2015;69(12):1141, doi:10.1136/jech-2014-205353.
90. Matoti-Mvalo T, Puoane T. Perceptions of body size and its association with HIV/AIDS. *South Afr J Clin Nutr.* 2011;24(1):40-45, doi:10.1080/16070658.2011.11734348.
91. Nutter S, Russell-Mayhew S, Saunders JF. Towards a sociocultural model of weight stigma. *Eat Weight Disord-St.* 2020, doi:10.1007/s40519-020-00931-6.
92. Swami V, Frederick DA, Aavik T, et al. The attractive female body weight and female body dissatisfaction in 26 countries across 10 world regions: results of the international body project I. *Pers Soc Psychol Bull.* 2010;36(3):309-325, doi:10.1177/0146167209359702.
93. Marini M, Sriram N, Schnabel K, et al. Overweight people have low levels of implicit weight bias, but overweight nations have high levels of implicit weight bias. *PLoS ONE.* 2013;8(12):e83543, doi:10.1371/journal.pone.0083543.
94. Ksinan AJ, Almenara CA, Vaculik M. The effect of belief in weight controllability on anti-fat attitudes: An experimental manipulation. *Eur Rev Appl Psychol.* 2017;67(3):117-124, doi:10.1016/j.erap.2016.12.004.
95. Naigaga DA, Jahanlu D, Claudius HM, Gjerlaug AK, Barikmo I, Henjum S. Body size perceptions and preferences favor overweight in adult Saharawi refugees. *Nutrition Journal.* 2018;17(1):17, doi:10.1186/s12937-018-0330-5.
96. Parker R, Aggleton P. HIV and AIDS-related stigma and discrimination: a conceptual framework and implications for action. *Soc Sci Med.* 2003;57(1):13-24, doi:10.1016/S0277-9536(02)00304-0.
97. Tyler I, Slater T. Rethinking the sociology of stigma. *Sociol Rev.* 2018;66(4):721-743, doi:10.1177/0038026118777425.
98. Tricco AC, Lillie E, Zarin W, et al. PRISMA extension for scoping reviews (PRISMA-ScR): Checklist and explanation. *Ann Intern Med.* 2018;169(7):467-473, doi:10.7326/M18-0850.
99. Arksey H, O'Malley L. Scoping studies: towards a methodological framework. *Int J Soc Res Methodol.* 2005;8(1):19-32, doi:10.1080/1364557032000119616.
100. United Nations. SDG Indicators: Regional groupings used in report and statistical annex. https://unstats.un.org/sdgs/indicators/regional-groups/. Published 2021. Accessed 03 May 2021.
101. Ma L, Chu M, Li Y, et al. Bidirectional relationships between weight stigma and pediatric obesity: A systematic review and meta-analysis. *Obesity Reviews.* 2021;n/a(n/a), doi:10.1111/obr.13178.
102. Peterson R. On the use of college students in social science research: Insights from a second-order meta-analysis. *J Consum Res.* 2001;28(3):450-461, doi:10.1086/323732.
103. Page MJ, Moher D, Bossuyt PM, et al. PRISMA 2020 explanation and elaboration: updated guidance and exemplars for reporting systematic reviews. *BMJ.* 2021;372:n160, doi:10.1136/bmj.n160.
104. Kersbergen I, Robinson E. Blatant dehumanization of people with obesity. *Obesity.* 2019;27(6):1005-1012, doi:10.1002/oby.22460.
105. Yılmaz HÖ, Ayhan NY. Is there prejudice against obese persons among health professionals? A sample of student nurses and registered nurses. *Perspect Psychiatr Care.* 2019;55(2):262-268, doi:10.1111/ppc.12359.
106. Agrawal P, Gupta K, Mishra V, Agrawal S. The psychosocial factors related to obesity: A study among overweight, obese, and morbidly obese women in India. *Women Health.* 2015;55(6):623-645, doi:10.1080/03630242.2015.1039180.

107. Leme ACB, Philippi ST. Teasing and weight-control behaviors in adolescent girls. Provocações e comportamentos para controle de peso em adolescentes do sexo feminino. *Rev Paul Pediatr.* 2013;31(4):431-436, doi:10.1590/S0103-05822013000400003.
108. Wong PC, Hsieh YP, Ng HH, et al. Investigating the self-stigma and quality of life for overweight/obese children in Hong Kong: a preliminary study. *Child Indic Res.* 2019;12(3):1065-1082, doi:10.1007/s12187-018-9573-0.
109. Sevincer GM, Kaya A, Bozkurt S, Akin E, Kose S. Reliability, validity, and factorial structure of the Turkish version of the weight self-stigma questionnaire (Turkish WSSQ). *Psychiat Clin Psych.* 2017;27(4):386-392, doi:10.1080/24750573.2017.1379717.
110. Duan W, Wang Z. Dispositional mindfulness promotes public health of the obesity population by reducing perceived discrimination and weight stigma concerns. *J Public Health (Berl)* 2019;27(2):195-202, doi:10.1007/s10389-018-0938-0.
111. Duan W, Wang Z. Mindfulness capability mediates the association between weight-based stigma and negative emotion symptoms. *Mindfulness.* 2019;10(6):1074-1081, doi:10.1007/s12671-018-1039-4.
112. Araújo LS, Coutinho MPL, Araújo-Morais LC, Simeão SSS, Maciel SC. Prejudice towards obesity: Social representations in printed media. Preconceito frente à obesidade: Representações sociais veiculadas pela mídia impressa. *Arq Bras Psicol.* 2018;70(1):69-85. http://pepsic.bvsalud.org/scielo.php?script=sci_abstract&pid=S1809-52672018000100006&lng=pt&nrm=iso&tlng=en.
113. Viviers D, Smit DM. The phenomenon of weight-based discrimination in South African employment. *JJS.* 2014;39:92-121. http://hdl.handle.net/11660/911.
114. Ling ELK, Don ZM. Fat stigmatisation in slimming advertisements in Malaysia. *SEARCH (Malaysia).* 2013;5(2):1-18. https://www.scopus.com/inward/record.uri?eid=2-s2.0-84893527482&partnerID=40&md5=e5346454ccb3d4ccbc054aa022a83581.
115. Wilson ML, Viswanathan B, Rousson V, Bovet P. Weight status, body image and bullying among adolescents in the Seychelles. *Int J Environ Res Public Health.* 2013;10(5):1763-1774, doi:10.3390/ijerph10051763.
116. Wang Y, Ding Y, Song D, Zhu D, Wang J. Attitudes toward obese persons and weight locus of control in Chinese nurses: A cross-sectional survey. *Nurs Res.* 2016;65(2):126-132, doi:10.1097/NNR.0000000000000145.
117. Macchi E. Worth your weight: Experimental evidence on the benefits of obesity in low-Income countries. 2021. https://elisamacchi.github.io/papers/wyw_macchi_draft.pdf. Accessed 24 March 2021.
118. Rafeh A, Hanif R. Understanding perception of weight stigma: Development and validation of perceived weight stigmatization scale. *Pakistan Journal of Psychological Research.* 2019;34(4):869-897, doi:10.33824/PJPR.2019.34.4.47.
119. Kanwal S, Naqvi I. Development of attitude towards obesity scale and obesity myths scale. *Pakistan Journal of Psychological Research.* 2020;35(1):53-72, doi:10.33824/PJPR.2020.35.1.4.
120. Alexius SL, Mocellin MC, Corrêa EN, Das Neves J, de Vasconcelos FAG, Corso ACT. Evidences of the association between individual attributes and bullying: A cross-sectional study with adolescents from Florianópolis, Santa Catarina state, Brazil. Evidências da associação entre atributos individuais e bullying: Um estudo

transversal em adolescentes de Florianópolis, Santa Catarina, Brasil. *Cad Saude Publica.* 2018;34(12), doi:10.1590/0102-311X00118617.
121. Rech RR, Halpern R, Tedesco A, Santos DF. Prevalence and characteristics of victims and perpetrators of bullying. *J Pediatr (Rio J).* 2013;89(2):164-170, doi:10.1016/j.jped.2013.03.006.
122. Russo LX. Association of victimization from bullying with body mass index in schoolchildren. Associação entre vitimização por bullying e índice de massa corporal em escolares. *Cad Saude Publica.* 2020;36(10), doi:10.1590/0102-311X00182819.
123. Lister C, Merrill RM, Vance D, West JH, Hall PC, Crookston BT. Predictors of peer victimization among Peruvian adolescents in the young lives cohort. *Int J Adolesc Med Health.* 2015;27(1):85-91, doi:https://doi.org/10.1515/ijamh-2014-0012.
124. da Silva AF, Moraes MS, Martins PC, Pereira EV, de Farias JM, Silva DAS. Prevalence of body image dissatisfaction and association with teasing behaviors and body weight control in adolescents. *Motriz* 2020;26(1), doi:10.1590/S1980-6574202000010198.
125. Guimarães TJ, Perez A, Dunker KLL. Impact of weight and diet parenting practices on body image of female adolescents. Impacto de práticas parentais de peso e dieta na imagem corporal de adolescentes do sexo feminino. *J Bras Psiquiatr.* 2020;69(1):31-37, doi:10.1590/0047-2085000000262.
126. Rodríguez Barrera JC, Bastidas M, Genta G, Olaya-Contreras P. Health related-quality of life in schoolchildren with obesity and overweight in Medellin, Colombia. Calidad de vida relacionada con la salud en escolares de 10 a 14 años con sobrepeso y obesidad en la ciudad de Medellín, Colombia. *Univ Psychol.* 2016;15(2):301-314, doi:10.11144/Javeriana.upsy15-2.cves.
127. Ramirez Chase M. *Eating disorders in Paraguayan adolescents* [Ph.D.]. Ann Arbor, Ball State University; 2012.
128. Cori GC, Petty MLB, Alvarenga MS. Attitudes of dietitians in relation to obese individuals – An exploratory study. Atitudes de nutricionistas em relação a indivíduos obesos – Um estudo exploratório. *Cien Saude Colet.* 2015;20(2):565-576, doi:10.1590/1413-81232015202.05832014.
129. Obara AA, Vivolo SRGF, Alvarenga MDS. Weight bias in nutritional practice: a study with nutrition students. Preconceito relacionado ao peso na conduta nutricional: Um estudo com estudantes de nutrição. *Cien Saude Colet.* 2018;34(8), doi:10.1590/0102-311x00088017.
130. Bacardí-Gascón M, Jimenéz-Cruz A, Castillo-Ruiz O, Bezares-Sarmiento V, León-González JM. Fat phobia in Mexican nutrition students. Fobia hacia la obesidad en estudiantes Mexicanos de nutricion. *Nutr Hosp.* 2015;32(6):2956-2957, doi:10.3305/nh.2015.32.6.9812.
131. de Araújo KL, Pena PGL, de Freitas MdCS. Suffering and prejudice: Paths taken by obese nutritionists seeking weight loss. Sofrimento e preconceito: Trajetórias percorridas por nutricionistas obesas em busca do emagrecimento. *Cien Saude Colet.* 2015;20(9):2787-2796, doi:10.1590/1413-81232015209.07542014.
132. da Costa MAP, de Souza MA, de Oliveira VM. Obesity in children and bullying: The teacherś viewpoint. Obesidade infantil e bullying: A ótica dos professores. *Educ e Pesqui.* 2012;38(3):653-665, doi:10.1590/S1517-97022012005000017.
133. Bertheau EL, Cruz-Quintana F, Pappous A, Schmidt Rio-Vaile J. Explicit and implicit attitudes towards obesity in physical education students. Actitudes explícitas e implícitas hacia la obesidad en estudiantes de cultura física. *Rev Psicol Deporte.* 2016;25(1):91-96. https://psycnet.apa.org/record/2016-18514-011.

134. Campos-Vazquez RM, Gonzalez E. Obesity and hiring discrimination. *Econ Hum Biol.* 2020;37:100850, doi:10.1016/j.ehb.2020.100850.
135. Anderson-Fye EP, McClure SM, Dreyer RE, Bharati A, James C. On body economics and fitting in: Upward mobility and obesity stigma in Jamaica. *Ethnic Health.* 2020;25(1):126-140, doi:10.1080/13557858.2017.1395815.
136. Maupin JN, Brewis A. Food insecurity and body norms among rural Guatemalan schoolchildren. *Am Anthropol.* 2014;116(2):332-337, doi:10.1111/aman.12098.
137. Garcia-Hermoso A, Oriol-Granado X, Correa-Bautista JE, Ramírez-Vélez R. Association between bullying victimization and physical fitness among children and adolescents. *Int J Clin Health Psychol.* 2019;19(2):134-140, doi:10.1016/j.ijchp.2019.02.006.
138. Hackman J, Maupin J, Brewis AA. Weight-related stigma is a significant psychosocial stressor in developing countries: Evidence from Guatemala. *Soc Sci Med.* 2016;161:55-60, doi:10.1016/j.socscimed.2016.05.032.
139. Council SK, Placek C. Cultural change and explicit anti-fat attitudes in a developing nation: A case study in rural dominica. *Soc Med.* 2015;9(1):11-21. https://www.socialmedicine.info/index.php/socialmedicine/article/view/768.
140. Paim MB, Kovaleski DF. Analysis of Brazilian guidelines for obesity: Pathologization of fat bodies, an approach focused on weight loss and anti-fat bias. Análise das diretrizes Brasileiras de obesidade: Patologização do corpo gordo, abordagem focada na perda de peso e gordofobia. *Saude e Soc.* 2020;29(1):1-12, doi:10.1590/S0104-12902020190227.
141. Jetly K, Hamzah Z, Nawi AM. Doctor's body mass index (BMI) on patient's attitudes of trust, compassion, and adherence to advice. *Int Med J.* 2020;27(4):438-443. https://www.scopus.com/inward/record.uri?eid=2-s2.0-85089210784&partnerID=40&md5=ab35b695bd9dc40a66666e78080f019f.
142. Taniguchi E, Lee HE. Individuals' perception of others' self-esteem, psychological well-being and attractiveness: Role of body size and peers' comments among Japanese and Americans. *Soc Sci J.* 2015;52(2):217-228, doi:10.1016/j.soscij.2014.10.006.
143. Lim Y, An S. Effects of attributions and social media exposure on obesity stigma among Korean adolescents. *Soc Behav Pers.* 2018;46(12):2049-2062, doi:10.2224/sbp.7260.
144. Yildiz M, Baysal HY. Prejudice against obesity in university students studying in health-related departments. *Perspect Psychiatr Care.* 2019;55(2):170-174, doi:10.1111/ppc.12314.
145. Toren NK, Schlesinger R, Musher-Eizenman D. Prejudices among Arab and Jewish pre-service teachers about body image and appearance. *Int J Sch Educ Psychol.* 2020, doi:10.1080/21683603.2018.1472688.
146. Altun Uğraş G, Yüksel S, Erer MTI, Kettaş E, Randa S. Are nurses willing to provide care to obese surgical patients? *Bariatr Surg Pract Patient Care.* 2017;12(3):116-122, doi:10.1089/bari.2017.0009.
147. Hirschfeld-Dicker L, Samuel RD, Vakrat ET, Dubnov-Raz G. Preferred weight-related terminology by parents of children with obesity. *Acta Paediatr.* 2019;108(4):712-717, doi:10.1111/apa.14538.
148. Awan KH, Khan S, Abadeen Z, Khalid T. Knowledge, perceptions, and attitudes of dental students towards obesity. *Saudi Dent J.* 2016;28(1):44-48, doi:10.1016/j.sdentj.2015.01.005.
149. Amini M, Djazayery A, Majdzadeh R, Taghdisi MH, Sadrzadeh-Yeganeh H, Eslami-Amirabadi M. Children with obesity prioritize social support against stigma: A

qualitative study for development of an obesity prevention intervention. *Int J Prev Med.* 2014;5(8):960-968. http://ijpm.mui.ac.ir/index.php/ijpm/article/view/1341/1653.
150. Dhillon M, Dhawan P. "But I am fat": The experiences of weight dissatisfaction in Indian adolescent girls and young women. *Womens Stud Int Forum.* 2011;34(6):539-549, doi:10.1016/j.wsif.2011.08.005.
151. Henry J, Kollamparambil U. Obesity-based labour market discrimination in South Africa: A dynamic panel analysis. *J Public Health.* 2017;25(6):671-684, doi:10.1007/s10389-017-0822-3.
152. Some M, Rashied N, Ohonba A. The impact of obesity on employment in South Africa. *Studies in Economics and Econometrics.* 2016;40(2):87 - 104. https://hdl.handle.net/10520/EJC193294.
153. Hardin J. Everyday translation: Health practitioners' perspectives on obesity and metabolic disorders in Samoa. *Crit Public Health.* 2015;25(2):125-138, doi:10.1080/09581596.2014.909581.
154. Koyanagi A, Veronese N, Vancampfort D, et al. Association of bullying victimization with overweight and obesity among adolescents from 41 low- and middle-income countries. *Pediatr Obes.* 2020;15(1):10, doi:10.1111/ijpo.12571.
155. Sievert K, Lobstein T, Baker P. Stigmatizing images in the media - a cross-national survey. *Clin Obes.* 2018;8(6):407-410, doi:10.1111/cob.12282.
156. Clément M, Levasseur P, Seetahul S. Is excess weight penalised or rewarded in middle-income countries' labour markets? Comparative evidence from China, India and Mexico. *Kyklos.* 2020;73(2):161-195, doi:https://doi.org/10.1111/kykl.12220.
157. Brewis AA, Wutich A. A world of suffering? Biocultural approaches to fat stigma in the global contexts of the obesity epidemic. *Ann Anthropol Pract.* 2014;38:269-283, doi:10.1111/napa.12056.
158. Brewis AA, Wutich A, Falletta-Cowden A, Rodriguez-Soto I. Body norms and fat stigma in global perspective. *Curr Anthropol.* 2011;52(2):269-276, doi:10.1086/659309.
159. Bajorek Z, Bevan S. Obesity and Work: Challenging stigma and discrimination. https://www.employment-studies.co.uk/system/files/resources/files/526.pdf. Published 2019. Accessed 11 May 2021.
160. Wolke D, Lereya ST. Long-term effects of bullying. *Arch Dis Child.* 2015;100(9):879-885, doi:10.1136/archdischild-2014-306667.
161. Uleanya ND, Aniwada EC, Okeke CC, Nwaoha SO, Obionu CN. Pattern and predictors of psychosocial disorders among overweight and obese children in Enugu, Southeast Nigeria. *SAJCH.* 2018;12(1):3-9, doi:10.7196/SAJCH.2018.v12i1.1423.
162. Amenyah SD, Michels N. Body size ideals, beliefs and dissatisfaction in Ghanaian adolescents: sociodemographic determinants and intercorrelations. *Public Health.* 2016;139:112-120, doi:10.1016/j.puhe.2016.05.012.
163. Barned C, O'Doherty K. Understanding fatness: Jamaican women's constructions of health. *Fat Stud.* 2019;8(1):25-43, doi:10.1080/21604851.2019.1532231.
164. Barned C, Lipps GE. Development and validation of a measure of attitudes toward Fluffy Women. *West Indian Med J.* 2014;63(6):626-633, doi:10.7727/wimj.2013.321.
165. Wakeman SE. The Language of Stigma and Addiction. In: Avery JD, Avery JJ, eds. *The Stigma of Addiction: An Essential Guide.* Cham: Springer International Publishing; 2019:71-80.
166. Hälsa Oberoende av Storlek. The national association for health regardless of size. Riksförbundet HOBS - Hälsa oberoende av storlek. https://www.hobs.se/#. Published No date. Accessed 14 May 2021.

167. Selensky JC, Carels RA. Weight stigma and media: An examination of the effect of advertising campaigns on weight bias, internalized weight bias, self-esteem, body image, and affect. *Body Image.* 2021;36:95-106, doi:10.1016/j.bodyim.2020.10.008.
168. Puhl R. The need for multilevel and collective action to address weight stigma. In. *Canadian Obesity Summit*. Teleconference 10 May 2021.
169. Bajorek Z, Bevan S. *Obesity stigma at work: Improving inclusion and productivity* Brighton Institute for Employment Studies; 2020.
170. Lacroix E, Alberga A, Russell-Mathew S, McLaren L, von Ranson K. Weight bias: A systematic review of characteristics and psychometric properties of self-report questionnaires. *Obes Facts.* 2017;10(3):223-237, doi:10.1159/000475716.
171. Straatmann VS, Almquist YB, Oliveira AJ, Rostila M, Lopes CS. Cross-lagged structural equation models for the relationship between health-related state and behaviours and body bullying in adolescence: findings from longitudinal study ELANA. *PLoS One.* 2018;13(1):e0191253, doi:10.1371/journal.pone.0191253.
172. Ahorsu DK, Lin CY, Imani V, et al. A prospective study on the link between weight-related self-stigma and binge eating: Role of food addiction and psychological distress. *Int J Eat Disord.* 2020;53(3):442-450, doi:10.1002/eat.23219.
173. Charlesworth TES, Banaji MR. Patterns of implicit and explicit attitudes: I. Long-term change and stability from 2007 to 2016. *Psychol Sci.* 2019;30(2):174-192, doi:10.1177/0956797618813087.
174. Rivera-Torres MDLA, Vélez-Cruz F, Ramírez-Longchamps RL, Rivera-Morales M, Villeneuve-Román M, Besosa-Vigo VM. Experiences of obese adolescents trying to reach a healthy weight: Considerations for the development of a curriculum guide. *P R Health Sci J.* 2018;37(4):208-212. https://pubmed.ncbi.nlm.nih.gov/30548056/.
175. Pearl RL, Puhl RM, Lessard LM, Himmelstein MS, Foster GD. Prevalence and correlates of weight bias internalization in weight management: A multinational study. *SSM - Population Health.* 2021;13:100755, doi:10.1016/j.ssmph.2021.100755.
176. Campos-Vazquez R, Nuñez R. Obesity and labor market outcomes in Mexico. Obesidad y el mercado de trabajo en México. *Estudios Económicos.* 2019;34(2):159-196. https://EconPapers.repec.org/RePEc:emx:esteco:v:34:y:2019:i:2:p:159-196.
177. Reece RL. Coloring weight stigma: On race, colorism, weight stigma, and the failure of additive intersectionality. *Sociology of Race and Ethnicity.* 2018;5(3):388-400, doi:10.1177/2332649218795185.
178. Noble H, Smith J. Issues of validity and reliability in qualitative research. *Evid Based Nurs.* 2015;18(2):34, doi:10.1136/eb-2015-102054.
179. Da Silva MO, Branco AU. Obesity, prejudice, self, and culture: A longitudinal case study. *Paideia.* 2019;29, doi:10.1590/1982-4327e2926.
180. Gonçalves H, Dumith SC, González DA, et al. Self-reported discrimination by adolescents in a Brazilian birth cohort: Prevalence and associations. Discriminação autorrelatada por adolescentes de uma coorte de nascimentos brasileira: Prevalŝncia e associações. *Rev Panam Salud Publica.* 2012;31(3):204-210. https://pubmed.ncbi.nlm.nih.gov/22569694/.
181. Obara AA, Alvarenga MS. Transcultural adaptation of the antifat attitudes test to Brazilian Portuguese. Adaptação transcultural da escala de atitudes antiobesidade para o Português do Brasil. *Cien Saude Colet.* 2018;23(5):1507-1520, doi:10.1590/1413-81232018235.17252016.
182. Palmeira CS, Santos LS, Silva SMBD, Mussi FC. Stigma perceived by overweight women. *Revista brasileira de enfermagem.* 2020;73:e20190321, doi:10.1590/0034-7167-2019-0321.

183. Philippi ST, Leme ACB. Weight-teasing: Does body dissatisfaction mediate weight-control behaviors of Brazilian adolescent girls from low-income communities? Provocações em relação ao peso corporal: A insatisfação com o próprio corpo afeta o comportamento de controle de peso de adolescentes Brasileiras de comunidades de baixa renda? *Cad Saude Publica.* 2018;34(6), doi:10.1590/0102-311X00029817.
184. Ulian MD, Sato PM, Pinto AJ, et al. "It is over there, next to that fat lady": A qualitative study of fat women's own body perceptions and weight-related discriminations. "É lá, perto da moça gorda": Estudo qualitativo sobre as percepções de mulheres gordas acerca de seus corpos e discriminações relacionadas ao peso corporal. *Saude e Soc.* 2020;29(4):1-15, doi:10.1590/s0104-12902020180313.
185. Gómez-Pérez D, Ortiz MS. Association between weight-based stigmatization psychological stress and calorie intake. Estigma de obesidad, cortisol e ingesta alimentaria: Un estudio experimental con mujeres. *Rev Med Chil.* 2019;147(3):314-321, doi:10.4067/S0034-98872019000300314.
186. Gómez-Pérez D, Cancino M, Moreno PI, Ortiz MS. Weight stigma, chronic stress, unhealthy diet, and obesity in chilean adults. *Int J Behav Med.* 2020, doi:10.1007/s12529-020-09917-1.
187. Escandón-Nagel N, Larenas-Said J. Anti-obesity attitudes, food symptomatology and meanings associated with obesity in students linked to the health area. Actitudes antiobesidad, sintomatología alimentaria y significados asociados a la obesidad en estudiantes universitarios vinculados al área de la salud. *Nutr Hosp.* 2020;37(2):285-292, doi:10.20960/nh.02791.
188. Council SK. *Overweight and obesity among women in rural Dominica: Models of body fat, attitudes, and social networks* [Ph.D.], Washington State University; 2016.
189. Christiansen ML. "Homo Caloricus": The epistemological construction of lipophobic stigma in public health media discourses. "Homo Caloricus": La construcción epistemológica del estigma lipofóbico en los discursos mediáticos de salud pública. *Salud Colect.* 2018;14(3):623-637, doi:10.18294/sc.2018.1602.
190. González-García DA, Acuña L. Social acceptance and rejection of people with different body size. Aceptación y rechazo social hacia personas de distintas tallas corporales. *Rev Mex Psicol.* 2014;31(1):58-70. https://www.redalyc.org/pdf/2430/Resumenes/Abstract_243033030008_2.pdf.
191. Hernández LO, Torres SF, Aguirre MFO, Romero ALS, Granados PSV. Implicit attitudes toward obesity among adolescents of Mexico City. Actitudes implicitas hacia la obesidad en adolescentes de la Ciudad de México. *Psicología y Salud.* 2015;25(1):15-24, doi:10.25009/pys.v25i1.1335.
192. Jiménez-Cruz A, de Escobar-Aznar YM, Castillo-Ruiz O, Gonzalez-Ramirez R, Bacardi-Gascón M. Beliefs about causes and consequences of obesity among women in two Mexican cities. *J Health Popul Nutr.* 2012;30(3):311-316, doi:10.3329/jhpn.v30i3.12295.
193. Rendón-Macías ME, Rosas-Vargas H, Villasís-Keever MT, Pérez-García C. Children's perception on obesity and quality of life: A Mexican survey. *BMC Pediatrics.* 2014;14(1), doi:10.1186/1471-2431-14-131.
194. Soto L, Jiménez-Cruz A, Armendariz-Anguiano AL, Bacardí-Gascón M. Fat phobia among first and fifth year medical students in Tijuana, México. *Gaceta Sanitaria.* 2015;29(2):153-157, doi:10.1016/j.gaceta.2014.09.004.
195. Brewis AA, Wutich A. Explicit versus implicit fat-stigma. *Am J Hum Biol.* 2012;24(3):332-338, doi:10.1002/ajhb.22233.
196. Nuñez R. Obesity and labor market in Peru. 2020, doi:10.2139/ssrn.3668482.

197. Saedon MS, Naing L. General practitioners' attitudes towards obesity in Brunei Darussalam. *Brunei Int Med J.* 2015;11(1):14-22. http://www.bimjonline.com/PDF/Bimj%202015%20Volume%2011,%20Issue%201/BIMJ201511114.pdf.
198. Chen H, Ye Y, Guo J. Impact of weight stigma on preadolescents' and adolescents' disordered eating behaviors: Testing two mediation models. *Soc Behav Pers.* 2020;48(10):1-15. https://www.sbp-journal.com/index.php/sbp/article/view/9392.
199. Chen G, He J, Zhang B, Fan X. Body weight and body dissatisfaction among Chinese adolescents: Mediating and moderating roles of weight-related teasing. *Curr Psychol* 2019, doi:10.1007/s12144-019-00572-8.
200. Ping F, Pan Q-Q, Zhou Z-K, Tian Y. Relationship between body mass index, perceived teasing and self-esteem: The mediation effect of body image. *Chinese Mental Health Journal.* 2011;25(5):369-373. https://search-proquest-com.ezproxy.ub.gu.se/psycinfo/results/81F7FCDDB9484222PQ/1?accountid=11162.
201. Wang Z, Dang J, Zhang X, Moore JB, Li R. Assessing the relationship between weight stigma, stress, depression, and sleep in Chinese adolescents. *Qual of Life Res.* 2021;30(1):229-238, doi:10.1007/s11136-020-02620-4.
202. Chai L, Xue J, Han Z. Excessive weight and academic performance among Chinese children and adolescents: Assessing the mediating effects of bullying victimization and self-rated health and life satisfaction. *Child Youth Serv Rev.* 2020;119:10, doi:10.1016/j.childyouth.2020.105586.
203. Chen H, Ye YD. Validation of the Weight Bias Internalization Scale for Mainland Chinese Children and Adolescents. *Front Psychol.* 2021;11, doi:10.3389/fpsyg.2020.594949.
204. Lin KP, Lee ML. Validating a Chinese version of the Weight Self-stigma Questionnaire for use with obese adults. *Int J Nurs Pract.* 2017;23(4):1-7, doi:10.1111/ijn.12537.
205. Liu X, Chen G, Yan J, Luo J. Weight status and bullying behaviors among Chinese school-aged children. *Child Abuse Negl.* 2016;52:11-19, doi:10.1016/j.chiabu.2015.12.010.
206. Klaczynski PA, Felmban WS. Thin idealization and causal attributions mediate the association between culture and obesity stereotypes: An examination of Chinese and American adolescents. *Br J Dev Psychol.* 2019;37(1):14-32, doi:10.1111/bjdp.12250.
207. Wang Z, Wang B, Hu Y, et al. Relationships among weight stigma, eating behaviors and stress in adolescents in Wuhan, China. *Glob Health Res Policy.* 2020;5:8, doi:10.1186/s41256-020-00138-3.
208. Cheng MY, Wang S-M, Lam YY, Luk HT, Man YC, Lin C-Y. The relationships between weight bias, perceived weight stigma, eating behavior, and psychological distress among undergraduate students in Hong Kong. *J Nerv Ment Dis.* 2018;206(9):705-710, doi:10.1097/NMD.0000000000000869.
209. Chan KL, Lee CSC, Cheng CM, et al. Investigating the relationship between weight-related self-stigma and mental health for overweight/obese children in Hong Kong. *J Nerv Ment Dis.* 2019;207(8):637-641, doi:10.1097/NMD.0000000000001021.
210. Fung XCC, Pakpour AH, Wu Y-K, Fan C-W, Lin C-Y, Tsang HWH. Psychosocial variables related to weight-related self-stigma in physical activity among young adults across weight status. *Int J Environ Res Public Health.* 2020;17(1):64, doi:10.3390/ijerph17010064.
211. Pakpour AH, Tsai M-C, Lin Y-C, et al. Psychometric properties and measurement invariance of the weight self-stigma questionnaire and weight bias internalization

scale in children and adolescents. *Int J Clin Health Psychol.* 2019;19(2):150-159, doi:10.1016/j.ijchp.2019.03.001.
212. Lin CY, Strong C, Latner JD, Lin YC, Tsai MC, Cheung P. Mediated effects of eating disturbances in the association of perceived weight stigma and emotional distress. *Eat Weight Disorders.* 2020;25(2):509-518, doi:10.1007/s40519-019-00641-8.
213. Tsai M-C, Strong C, Latner JD, et al. Attitudes toward and beliefs about obese persons across Hong Kong and Taiwan: Wording effects and measurement invariance. *Health Qual Life Outcomes.* 2019;17:11, doi:10.1186/s12955-019-1198-6.
214. Ganapathy SS, Tan L, Sooryanarayana R, et al. Body weight, body weight perception, and bullying among adolescents in Malaysia. *Asia-Pac J Public He.* 2019;31(8, Suppl):38S-47S, doi:10.1177/1010539519879339.
215. Jiang W, Tan J, Fassnacht DB. Implicit and explicit anti-fat bias among Asian females. *Eat Weight Disord.* 2017;22(3):457-465, doi:10.1007/s40519-016-0290-8.
216. Bang KS, Chae SM, Hyun MS, Nam HK, Kim JS, Park KH. The mediating effects of perceived parental teasing on relations of body mass index to depression and self-perception of physical appearance and global self-worth in children. *J Adv Nurs.* 2012;68(12):2646-2653, doi:10.1111/j.1365-2648.2012.05963.x.
217. Han SS, Han JW, Lee JM. Development of an instrument for assessment of Korean nurses' attitudes toward obese patients. *Jpn J Nurs Sci.* 2015;12(3):249-257, doi:10.1111/jjns.12064.
218. Kim S-G, Yun I, Kim J-H. Associations between body weight and bullying among South Korean adolescents. *J Early Adolesc.* 2016;36(4):551-574, doi:10.1177/0272431615577204.
219. Lin C-Y, Tsai M-C, Liu C-H, Lin Y-C, Hsieh Y-P, Strong C. Psychological pathway from obesity-related stigma to anxiety via internalized stigma and self-esteem among adolescents in Taiwan. *Int J Environ Res Public Health.* 2019;16(22):4410, doi:10.3390/ijerph16224410.
220. Chang LY, Chang HY, Wu WC, Lin LN, Wu CC, Yen LL. Body mass index and depressive symptoms in adolescents in Taiwan: Testing mediation effects of peer victimization and sleep problems. *Int J Obes.* 2017;41(10):1510-1517, doi:10.1038/ijo.2017.111.
221. Wu YK, Liu Y. Weight-related stigmatization and binge eating among overweight adults in Southern Taiwan. *Asia Pacific Journal of Clinical Nutrition.* 2015;24(1):118-127, doi:10.6133/apjcn.2015.24.1.05.
222. Yen C-F, Liu T-L, Ko C-H, Wu Y-Y, Cheng C-P. Mediating effects of bullying involvement on the relationship of body mass index with social phobia, depression, suicidality, and self-esteem and sex differences in adolescents in Taiwan. *Child Abuse Negl.* 2014;38(3):517-526, doi:10.1016/j.chiabu.2013.07.015.
223. Shinan-Altman S. Medical social workers' perceptions of obesity. *J Soc Work.* 2017;17(3):343-357, doi:10.1177/1468017316644696.
224. Stone O, Werner P. Israeli dietitians' professional stigma attached to obese patients. *Qual Health Res.* 2012;22(6):768-776, doi:10.1177/1049732311431942.
225. Elboim-Gabyzon M, Attar K, Peleg S. Weight stigmatization among physical therapy students and registered physical therapists. *Obes Facts.* 2020;13(2):104-116, doi:10.1159/000504809.
226. Alqahtani NM, Shehata SF, Mostafa OA. Prevalence and determinants of unconscious stereotyping among primary care physicians:An analytical cross-section study. *Saudi Med J.* 2020;41(8):858-865, doi:10.15537/SMJ.2020.8.25186.
227. Cetinkaya S, Sert H. Sakarya university students' fat phobia levels and attitudes towards obese individuals and their correlation with healthy lifestyle behaviours:

Knowledge, attitude and practice (KAP) study. *J Pak Med Assoc.* 2018;68(9):1358-1362. https://pubmed.ncbi.nlm.nih.gov/30317264/.
228. Cevik C, Sivrikaya SK. Prejudice against obesity among students in a faculty of health sciences: A cross-sectional study in Turkey. *Southeast Asian J Trop Med Public Health.* 2019;50(3):598-605. https://hdl.handle.net/20.500.12462/11023.
229. Usta E, Bayram S, Altınbaş Akkaş Ö. Perceptions of nursing students about individuals with obesity problems: Belief, attitude, phobia. *Perspect Psychiatr Care.* 2020, doi:10.1111/ppc.12613.
230. Ciloglu H, Yilmaz M. Attitudes and self-perception of 10- to 14-year-old students toward obese children. *J Sch Nurs.* 2020, doi:10.1177/1059840520933341.
231. Tas D, Tüzün Z, Düzçeker Y, Akgül S, Kanbur N. The effects of parental and peer factors on psychiatric symptoms in adolescents with obesity. *Eat Weight Disord.* 2020;25(3):617-625, doi:10.1007/s40519-019-00660-5.
232. Erdogan Z, Kurcer MK, Kurtuncu M, Catalcam S. Validity and reliability of the Turkish version of the weight self-stigma questionnaire. *J Pak Med Assoc.* 2018;68(12):1799-1804. https://pubmed.ncbi.nlm.nih.gov/30504938/.
233. Hayran O, Akan H, Özkan AD, Kocaoğlu B. Fat phobia of university students: Attitudes toward obesity. *J Allied Health.* 2013;42(3):147-150. https://pubmed.ncbi.nlm.nih.gov/24013244/.
234. Nair SC, Sheikh SM, Ibrahim H. Higher physician body mass index is associated with increased weight bias in an Arab country with high prevalence of obesity. *Int J Prev Med.* 2019;10(1):1-5, doi:10.4103/ijpvm.IJPVM_64_18.
235. O'Hara L, Tahboub-Schulte S, Thomas J. Weight-related teasing and internalized weight stigma predict abnormal eating attitudes and behaviours in emirati female university students. *Appetite.* 2016;102:44-50, doi:10.1016/j.appet.2016.01.019.
236. Weaver LJ, Trainer S. Shame, blame, and status incongruity: Health and stigma in rural Brazil and the urban United Arab Emirates. *Cult Med Psychiatry.* 2017;41(3):319-340, doi:10.1007/s11013-016-9518-3.
237. Patel HA, Varma J, Shah S, Phatak A, Nimbalkar SM. Profile of bullies and victims among urban school-going adolescents in Gujarat. *Indian Pediatrics.* 2017;54(10):841-843, doi:10.1007/s13312-017-1146-7.
238. Garousi S. Body weight concerns and antifat attitude in Iranian children. *Int J Prev Med.* 2014;5(12):1587-1593. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4336990/.
239. Hemati N, Zokaei A. Attitudes and beliefs of nurses about excessive body weight and obesity. *Social Sciences (Pakistan).* 2016;11(9):2058-2065, doi:10.3923/sscience.2016.2058.2065.
240. Farhangi MA, Emam-Alizadeh M, Hamedi F, Jahangiry L. Weight self-stigma and its association with quality of life and psychological distress among overweight and obese women. *Eat Weight Disord.* 2017;22(3):451-456, doi:10.1007/s40519-016-0288-2.
241. Lin C-Y, Imani V, Broström A, et al. Psychological distress and quality of life in Iranian adolescents with overweight/obesity: Mediating roles of weight bias internalization and insomnia. *Eat Weight Disord.* 2020;25(6):1583-1592, doi:10.1007/s40519-019-00795-5.
242. Simkhada P, Poobalan A, Simkhada PP, Amalraj R, Aucott L. Knowledge, attitude, and prevalence of overweight and obesity among civil servants in Nepal. *Asia Pac J Public Health.* 2011;23(4):507-517, doi:10.1177/1010539509348662.

243. Munir M, Dawood S. Weight stigma and disordered eating behaviors in Pakistani overweight adolescents: the mediating role of body esteem. *Eat Weight Disord.* 2020, doi:10.1007/s40519-020-01038-8.
244. Mahmood S, Freeman J, Relton C. Weight stigmatization among undergraduate students of medicine and allied health sciences of public sector institutes. *J Obes Weight Loss Ther.* 2013;3(7), doi:10.4172/2165-7904.S1.010.
245. Govender RD, Al-Shamsi S, Regmi D. Weight bias and eating behaviours of persons with overweight and obesity attending a general medical practice in Durban, South Africa. *S Afr Fam Pract* 2019;61(3):85-90, doi:10.1080/20786190.2018.1554305.

Appendix 1: Database Searches

1.1 Scopus Searches

SEARCH TERMS SCOPUS

WEIGHT
weight OR overweight OR obese OR obesity OR fat OR fatness OR anti-fat OR heavy OR heaviness OR "body mass index" OR bmi OR antifat OR "over weight" or "body weight"

BIAS
trust OR attitude OR attitudes OR belief OR beliefs OR phobic OR phobia OR stigma OR stigmas OR stigmatization OR stigmatizing OR stigmatize OR stigmatizes OR stigmatise OR stigmatises OR stigmatised OR stigmatisation OR shame OR shaming OR shamed OR discriminate OR discriminating OR discrimination OR bias OR biases OR biased OR stereotype OR stereotypes OR stereotyping OR stereotyped OR prejudice OR prejudiced OR prejudices OR tease OR teasing OR teased OR bully OR bulling OR bullied OR harass OR harassment OR harassing OR victim OR victimization OR victimisation OR ostracize OR ostracise OR ostracizing OR ostracizes OR ostracized OR ostracising OR ostracised OR ostracises

AREAS OUTSIDE OF ENAN
global OR globalization OR globalized OR LMIC OR "low-and-middle-income-country" OR "low-and-middle-income-countries" OR "low- and middle- income country" OR "low-and middle- income countries" OR "low- and middle-income countries" OR "low- and middle-income country" OR "low and middle income country" OR "low and middle income countries" OR "middle income country" OR "low income country" OR "middle income countries" OR "middle-income country" OR "middle-income countries" OR "low-income country" OR "low-income countries" OR "low income countries" OR "developing nations" OR "developing nation" OR "developing country" OR "developing countries" OR "third world" OR "developing world" OR "Latin America" OR "Latin American" OR "South America OR "South American" OR "Central America" OR "Central American" OR "Middle East" OR "Middle Eastern" OR mideast or mideastern OR Arab OR Arabic OR Caribbean OR Asia OR Asian OR Pacific OR Oceania OR Africa OR African AND NOT "African American" AND NOT "Asian American"

SCOPUS SEARCHES

Search 1

S1: Weight Terms in Title
S2: Weight Terms in Keywords
S3: S1 OR S2
S4: Bias Terms in Title
S5: Bias Terms in Keywords
S6: S4 OR S5
S7: S3 AND S6
S8: Year Filter 2011-2021*
S9: Included Subject Areas Filter (Medicine; Nursing; Psychology; Social Sciences; Health Professions; Multidisciplinary; Arts and Humanities; Business, Management, and Accounting; Economics, Econometrics, and Finance; Dentistry; and Undefined
S10: Country Filter (Exclude countries in ACEU)

Search 2:

S11: Areas outside of ENAN in Title, Abstract, and Keywords
S12: S9 AND S11

*9 March 2021 was the date of the final search

1.2. PsychInfo Searches

SEARCH TERMS PSYCHINFO

WEIGHT
Weight OR overweight OR obes* OR fat OR anti-fat OR heavy OR heaviness OR “body mass index” OR bmi OR antifat OR “over weight” OR “body weight”

BIAS
trust OR attitude* OR belief* OR phobi* OR stigma* OR sham* OR discriminat* OR bias* OR stereotyp* OR prejudice* OR teas* OR bull* OR harass* OR victim* OR ostraciz*

AREAS OUTSIDE OF ACEU
global* OR LMIC OR "low and middle income countr*" OR "low income country" OR "middle income country" OR "developing nation*" OR "developing countr*" OR "third world" OR "developing world" OR "Latin America*" OR "South America*" OR "Central America*" OR "Middle East*" OR mideast* OR Arab* OR "Caribbean" OR Asia* OR Pacific OR Oceania OR Africa* NOT "African American" NOT "Asian American"

PSYCHINFO SEARCHES

Search 1
S1: Weight Terms (in all subject and indexing) AND Bias Terms (in all subjects and indexing) AND Areas outside of ACEU (Anywhere except full text)
S2: Filter: 2011-2021*

Search 2
S3: Weight Terms (in title) AND Bias Terms (in title) AND Areas outside of ACEU (anywhere except full text)
S4: Filter: 2011-2021*

Search 3
S5: Weight Terms (in all subject and indexing) AND Bias Terms (in all subjects and indexing)
S6: Year Filter: 2011-2021*
S7: Subject Filter: excluded African American, motor activity, feeding and eating disorders, food preferences, United States, & feeding behavior

Search 4
S8: Weight Terms (in title) AND Bias Terms (in title)
S9: Year Filter: 2011-2021*
S10: Subject Filter: excluded United States, feeding behavior, and feeding and eating disorders (additional subjects excluded in Search 3 were not in Search 4)

*9 March 2021 was the date of the final search

Appendix 2: Extracted Data

Abbreviations and Symbols

*	Funded	LMIC	Low and Middle Income Country	SE	Stigmatizing Encounters
^	Abstract only	Long.	Longitudinal	SES	Socioeconomic Status
Adol	Adolescents	M	Media	SIT	Stigmatizing Images and Texts
AWS	Addressing Weight Stigma	MA	Mean Age	SP	Stigma Practices
BD	Body Dissatisfaction	NW	Normal Weight	UAE	United Arab Emirates
BMI	Body Mass Index	OB	Obese or Obesity	UK	United Kingdom
BTV	Bullying/Teasing/Victimization	Obs	Observational	Uni	University
Cat	Category	OO	Outcomes - Organizational	US	United States
Comm	Commentary	OP	Outcomes - Personal	UW	Underweight
D	Drivers	OW	Overweight	w/	with
E/F	Employment/Finances	PA	Physical Activity	WB	Weight Bias
EFA	Exploratory Factor Analysis	PE	Physical Education	WS	Weight Stigma
EWB	Explicit Weight Bias	PHC	Pre-Healthcare	WSS	Weight Self Stigma
Exper.	Experimental	PT	Physical Therapist	XS	Cross-Sectional
F	Female(s)	PwO	People with Obesity	yo	Years Old
Fac	Facilitators	PWS	Perceived Weight Stigma		
GP	General Practitioner	QD	Questionnaire Development		
GRO	General, Research, or Other	QoL	Quality of Life		
HC	Healthcare	Qual	Qualitative		
HH	Household	Quant	Quantatative		
HIC	High-Income Country	RN	Registered Nurse(s)		
HRQoL	Health-Related Quality of Life	S	School		
IWB	Internalized Weight Bias	S/P	School/Peers		

2.1: Latin America and the Caribbean

Author & Year	Country	Settings: Stigma (Study)	Cat of WS	Population	Study Design	Main Findings
Alexius et al[120] 2018	Brazil	S/P (S)	BTV D	975 Students 11-14yo 54.3% F	XS Quant	In addition to other factors measured, boys that were discriminated against for being fat. Girls who were fat had higher odds of being bullied.
Araújo et al[112] 2018^	Brazil	M (GRO)	SIT Fac	N/A	XS Qual	Representation of OB as a disease was the dominant medical message. Articles also showed "blatant prejudice and discrimination towards OW people, especially in the working context"[112] creating a message, especially for women, that they need to fit a certain ideal.
Cori et al[128] 2015^	Brazil	HC (HC)	SP D	344 Dietitians 97.1%F	XS Quant	High levels of obesity stigmatization and prejudice were shown. Views on causes of obesity included "emotional and mood changes, food addiction, and low self-esteem."[128]
da Costa et al[132] 2012^	Brazil	S/P (S)	BTV D	63 Teachers	XS Qual	According to the teachers, OW students face prejudice and exclusion. They are also shy and have low self-esteem. The teachers showed negative attitudes toward the OW students, meaning the teachers may bully as well.
Da Silva & Branco[179] 2019	Brazil	GRO (GRO)	SE Fac &OP	29yo F with bariatric surgery	Qual long. case study	Fat phobia which occurs throughout society and within the home is a complex phenomenon and has great influence on those who are its victims.
da Silva et al[124] 2020	Brazil	S/P (GRO)	BTV OP	580 Students 11-17yo MA:14 51.4% F	XS Quant	"[M]ore than half of adolescents of both sexes are dissatisfied with their body image, mainly due to overweight."[124] This is associated with being victimized by peers, although specific reasons differ between males and females.
de Araújo et al[131] 2015	Brazil	HC (HC)	SE D&OP	8 F Dietitians who felt/had OB 30-62yo	XS Qual	Dietitians with obesity are stigmatized both on personal and professional levels. They also exhibit IWB.

Gonçalves et al[180] 2012^	Brazil	GRO (GRO)	SE D	4452 Adol. from a cohort of 5,259	XS Quant	Among other factors, discrimination was reported among those with a self-perception of being very thin or very fat, with thin children reporting this more than OW/OB children. OB discrimination was higher among girls, particularly among rich girls.
Guimarães et al[125] 2020^	Brazil	HH (GRO)	BTV D&OP	270 F Adol	XS Quant	Among other findings, weight teasing was associated with BD. Comments about a daughter's weight are not a risk factor if she lives with both parents. Fathers can have positive (encouraging healthy choices) and negative (weight teasing and encouraging dieting) influences on the daughters.
Leme & Philippi[107] 2013	Brazil	HH (GRO)	BTV	159 F Adol 13-19yo MA: 16.2±1.3	XS Quant	Weight teasing "by family members was associated with risk for unhealthy weight control behaviors in female adolescents."[107]
Obara & Alvarenga[181] 2018^	Brazil	GRO (GRO)	QD	340 PHC Students	XS Quant	"[T]he scale adapted to the Brazilian-Portuguese version is valid and useful in studies to explore negative attitudes toward obese individuals."[181]
Obara et al[129] 2018	Brazil	PHC (Uni)	SE OP	335 Nutrition Students MA: 23.5 ± 4.9 93.7% F	XS Quant	"Patient's weight influenced consultation time and students' perceptions and treatment approaches and strategies. The study revealed biases and negative attitudes mainly involving the students' perceptions and reactions to obese patients, and obese women generally received the worse evaluations."[129]
Paim & Kovaleski[140] 2020^	Brazil	HC (GRO)	AWS Fac	N/A	Qual Content Analyses	"The discourse present in these guidelines reinforces the inherent health of lean bodies, reproduces stereotypes related to fat bodies, and directly relates lost pounds to better health."[140]
Palmeira et al[182] 2020*	Brazil	GRO (HC)	SE D&OP	11 F Adults w/OW/OB 29-56yo MA: 40.8	XS Qual	"[D]iscrimination experienced in various settings [work, home, public areas] has caused suffering, embarrassment, negative feelings, shame, isolation and loss in women's lives."[182]
Philippi & Leme[183] 2018*	Brazil	S HH (GRO)	BTV Fac &OP	253 F Adol. 14-18yo MA: 15.62 ± 0.05	XS Quant	"Adolescents from São Paulo that were weight teased by family or peers tend to be more dissatisfied with their physical appearance, which results in unhealthy weight control behaviors. The main concern refers to the use of non-healthy weight practices to attain the beauty ideal proposed by society and emphasized by weight bias and stigma against peers that are overweight."[183]

Rech et al[121] 2013*	Brazil	S/P (S)	BTV	1230 Students Grade 6 11-14yo MA:11.85±0.82 49.3% F	XS Quant	"Body image and sedentary habits were associated with victims and perpetrators, and male gender was more prevalent among the perpetrators of bullying."[121] Excess weight did not have a significant association with being the victim or perpetrator of bullying
Ulian et al[184] 2020*	Brazil	GRO (GRO)	SE OP	39 F w/ OB 25-50yo	XS Qual	Women with OB face stigmatization/discrimination in many areas of life including home, work, healthcare, and public areas. They also had negative self-evaluations influenced by living in bigger bodies.
Straatmann et al[171] 2018*	Brazil	S/P (GRO)	BTV D&OP	810 Adol. 9-15yo when study began	Long. Quant	"For boys and girls alike, exposure to being body bullied seemed to increase their time spent on [video games/computers], while for boys BMI also predicted being body bullied."[171]
Russo[122] 2020^	Brazil	S/P (GRO)	BTV	Students 11-15yo	XS Quant	"Both [UW] and [OW/OB] schoolchildren were more likely to suffer bullying, compared to their peers with adequate weight for age. The association was found in both sexes, and the U-shaped curve was more accentuated in girls."[122]
Gómez-Pérez & Ortiz[185] 2019*^	Chile	GRO (GRO)	SE OP	82 F Adults MA: 45 ± 8 years	XS Quant	There was a direct association between psychological stress and calorie intake (unmediated by negative emotions) among women who observed stigmatization.
Gómez-Pérez et al[186] 2020*	Chile	GRO (Uni)	SE OP	383 Uni Faculty Mean age 45 59% F	XS Quant	There was a "direct effect of weight stigma on obesity, chronic stress, and unhealthy diet. However, chronic stress and unhealthy diet did not mediate the relationship between weight stigma and obesity."[186]
Escandón-Nagel & Larenas-Said[187] 2020^	Chile	PHC (Uni)	SP D	212 PHC Students	XS Quant	"[W]omen showed higher values than men in all the variables studied . . . except bulimia . . . Drive for thinness was the only predictor for anti-obesity attitudes . . . The most prevalent meanings attached to people with obesity were 'illness' and 'psychological issues'."[187]
Garcia-Hermoso et al[137] 2019*	Columbia	S/P (S)	BTV D	7,714 Students 9-17yo 56.2% F	XS Quant	Physically fit children were bullied less than those who were unfit. Physically fit children with OW/OB may face less victimization than unfit children with OW/OB.

Rodríguez Barrera et al[126] 2016^	Columbia	S/P (S)	BTV D&OP	679 Students 10-14yo	XS Quant	Students with OW/OB were perceived to have more problems with physical activity and their health and were less socially accepted. Boys with OW were also seen as not able to do the same activities as NW boys which made them "easily mocked and intimidated."[126] For girls, "the perception of HRQoL did not differ significantly had normal or overweight."[126]
Council & Placek[188] 2015	Dominica	S/P (S)	SP Fac	74 F Adult 18-75yo MA= 38.1	XS Quant	High levels of anti-fat attitudes were found, similar to other LMICs and HICs. Social media contributes to this especially among young, non-traditional women.
Bertheau et al[133] 2016^	Ecuador	S/P (S)	SP	80 PE Students 18-33yo	XS Quant	The PE students showed negative explicit and implicit attitudes towards obesity. Females also showed a fear of gaining weight.
Hackman et al[138] 2016*	Guatemala	GRO (GRO)	SE OP	12,074 F 15-50yo	XS Quant	Women with OW and UW experienced weight teasing. Weight teasing is a significant psychosocial stressor similar to other stressors in a low-income country such as "poverty . . . food insecurity, and . . . sexual/domestic violence."[138]
Maupin & Brewis[136] 2014	Guatemala	GRO (S)	SP D	223 Students 8-12yo 57% F	XS Quant	While the findings show a "strong preference for average bodies and prejudice against both thin and fat bodies overall, food insecurity predicts children having very negative evaluations of thin bodies."[136]
Anderson-Fye et al[135] 2020*	Jamaica	E/F (Uni & GRO)	SP D&Fac	Survey: 19 Uni Students Interviews: 13 Uni. Students 20 community members 18-25yo	XS MM	Although there are many body size ideals, there is obesity stigma in Jamaica. SES and desire for upward economic mobility may affect experience of WS.
Barned & Lipps[164] 2014	Jamaica	GRO Uni	QD	80 Uni Students 52.5% F	XS Quant	"The Attitudes Toward Fluffy Women scale was found to be a reliable and valid scale for assessing the attitudes of young adults toward fluffy women."[164]
Barned & O'Doherty[163] 2019	Jamaica	GRO GRO	SP Fac	41 F 18-62yo MA: 27	XS Qual	Both acceptance and preference of bigger bodies was seen as long as they are not too big. Too big means you eat too much while being too thin is also unhealthy as if you are malnourished.

Christiansen et al[189] 2018^	Mexico	M (GRO)	SIT Fac	N/A	XS Qual	Biomedical media creates a shallow view of what bodies are while creating a narrative that fat bodies are sick by demoralizing them and creating biased generalizations.
González-García & Acuña[190] 2014^	Mexico	GRO (GRO)	SP	275 Adults	XS Quant	"[A]ll the silhouettes received both positive and negative nominations . . .while the heaviest silhouettes received the highest number of negative nominations . . . neither an indiscriminate acceptance towards thinness, nor a generalized rejection towards obesity"[190] was evident.
Hernández et al[191] 2015^	Mexico	GRO (S)	SP D	617 Students 11-17yo	XS Quant	"Approximately 70% of students associated the obesity with negative attributes. The groups with more negative attitudes toward obesity were women, adolescents with normal or low weight, of higher SES, and those who have been bothered because of their weight."[191]
Bacardí-Gascón et al[130] 2015	Mexico	PHC (Uni)	SP	630 Nutrition Students 18-25yo	XS Quant	"Only 12% showed neutral or positive attitudes towards obesity . . . while negative attitude . . . was observed among 88% of all students showing a high prevalence of fat phobia towards obesity."[130]
Jiménez-Cruz et al[192] 2012	Mexico	GRO (HC)	SP D	1,100 F Adults 18-92yo MA: 37.5	XS Quant	Among other findings, participants reported that one of the consequences related to having obesity is being discriminated against. [192]
Rendón-Macías et al[193] 2014	Mexico	GRO (S)	SP D	1,335 Students 6-12yo MA: 9.6 ± 1.9 50.7% F	XS Quant	"[R]esults showed that most children . . . considered obesity as a negative condition that influences health and social performance,"[193] such as dying younger than people without OB, living a sad life or having limited wealth.
Soto et al[194] 2014	Mexico	PHC (Uni)	SP D	528 PHC Students MA: 20.7 ± 3.0 56.3% F	XS Quant	"A high frequency of fat phobias and negative attitudes towards O[besity] was found. Men and those having little or no contact with people with O[besity] demonstrated a higher stigma towards the obese."[194]
Campos-Vazquez & Nuñez [176] 2019*	Mexico	E/F (GRO)	SE	30,452 Adults 20-60yo MA: 38 58.2% F	XS Quant	"Our results show that for men, BMI does not affect their decision to work or their wages. For women, however, an increase of one standard deviation in the BMI is associated with a 16% decrease in hourly wages."[176]

Campos-Vazquez & Gonzalez[134] 2020	Mexico	E/F (E/F)	SE D	N/A	XS Quant Exper.	"There is clear evidence of discrimination against obese women, but not obese men."[134] Men also discriminated against applicants with OB more than women.
Brewis & Wutich[195] 2012*	Paraguay	GRO GRO	SP Fac &OP	200 Women MA: 38.9 ± 13.4 66 Uni Students from US MA:23.68 ± 11.2 75% female	XS Quant	Paraguayan women demonstrated explicit ant-fat bias but not implicit. This is in contrast to "industrialized nations"[195] where explicit and implicit bias are more associated.
Ramirez Chase[127] 2012	Paraguay	HH M (S)	BTV OP	561 Adol. Grades 6-12 11-19yo MA: 14.2 48% F	XS Quant	Among other factors, "adolescents who had been criticized about their weight by a family member and those who felt a strong desire to lose weight after being exposed to media messages were at higher risk for developing an eating disorder"[127]
Lister et al[123] 2015*	Peru	S/P (GRO)	BTV	714 Children & Adol. 8, 12, & 15yo 46% F	Long Quant	"This study showed several factors as the predictors of victimization in the early years, including being male and having low BMI, low socioeconomic status, and low parental/caregiver education."[123]
Nuñez[196] 2020	Peru	E/F (GRO)	SE	45,172 Work-able people 15 -65yo 49.1% F	XS Quant	Increases in BMI in women has a negative impact on being employed and wages. Increases in BMI in men are associated with increases in wages.
Rivera-Torres et al[174] 2018	Puerto Rico	GRO (S)	IWB D&OP	8 Adol. w/OB 15-17yo 88% F	Qual Multi-case study	Participants verbalized indications of self-stigma as well as stigmatization and discrimination from others. They are also not supported by parents and trainers and experience negative emotions when engaging in weight loss activities.

2.2: Eastern and South Eastern Asia

Author & Year	Country	Settings Stigma (Study)	Cat of WS	Population	Study Design	Main Findings
Saedon & Naing[197] 2015	Brunei	HC (HC)	SP D	77 GPs MA: 40.5± 9.59 53.3% F	XS Quant	"GPs tended to have negative attitudes to patients with obesity but majority believe that obese patient can achieve normal weight."[197]
Wang et al[116] 2016*	China	HC (HC)	SP D	297 Nurses 20-47yo MA: 26.43±4.22 100% F	XS Quant	"Chinese RNs seemed to have relatively neutral or even slightly positive attitudes toward obese persons. Those nurses who believed that obesity was beyond the individual's control or worked in specialties were more likely to have positive attitudes toward obese people."[116]
Chen et al[198] 2020	China	GRO (S)	IWB D&OP	421 Students 9–14yo 47.5% F	XS Quant	"[W]eight stigma, [IWB], and core self-evaluation [are] predictors of disordered eating behaviors in preadolescents and adolescents"[198]
Chen et al[199] 2019*	China	GRO (S)	BTV OP	711 Students	XS Quant	"High-BMI adolescents are prone to body dissatisfaction, and this association may be mediated by weight-related teasing for both girls and boys. Additionally, weight-related teasing can moderate the association between BMI and body dissatisfaction in girls."[199]
Duan & Wang[110] 2019*	China	GRO (Uni)	AWS OP	254 Uni Students with OW/OB 37.4% F	XS Quant	"Mindfulness may benefit negative emotional symptoms of obese individuals by reducing the effect of perceived discrimination, which further reduces weight stigma concerns."[110]

Duan & Wang[111] 2019*	China	GRO (Uni)	AWS OP	293 Uni Students w/ OW/OB MA: 22.5 52.9% F	XS Quant	""[W]ith the increase in mindfulness capability of individuals, they may less likely transform the weight-based stigma into negative emotion symptoms."[111]
Ping et al[200] 2011^	China	GRO (S)	BTV OP	390 High School Students	XS Quant	"The body mass index (BMI), perceived teasing and body image could affect self-esteem, and body image partially mediate the relationship between BMI, perceived teasing and self-esteem"[200] Also, females "scored higher in perceived teasing" [200] and were more dissatisfied with their bodies than males.
Wang et al[201] 2021^	China	GRO (S)	BTV OP	1626 Adol. 14 -19yo MA:16.81± 0.95 46.19% F	XS Quant	"[A]dolescents who experience weight stigma may have increased stress and depressive symptoms, which are associated with poorer global sleep quality and more daytime dysfunction."[201]
Chai et al[202] 2020	China	S/P (S)	BTV OP	3,625 Students Grades 4-12 51.8% F	XS Quant	Girls with perceived UW, OW, and OB had lower academic performance than NW students. OB girls were "more likely to report cyberbullying victimization"[202] affecting life satisfaction and academic performance. These associations were not found in boys.
Chen & Ye[203] 2021	China	GRO (S)	QD	421 Students in sample 1 9-15yo MA: 11.14±2.01 47.5% F 43 students in test-retest sample	XS Quant	"The [Chinese]-WBIS is a reliable and valid measure that can be used as a psychometrically sound and informative tool to assess weight bias internalization among children and adolescents."[203]

Lin & Lee[204] 2017	China	S/P (S)	QD	156 Adults with OW/OB 20-50yo MA:22.19± 9.74 53.8%	XS Quant	"The [Chinese]-WSSQ shows adequate reliability and validity."[204]
Liu et al[205] 2016*	China	S/P (S)	BTV	10,587 Students 7-18yo MA:11.90± 3.22 47.5% F	XS Quant	While weight victimization was not as common as it is in the west, girls with OB were bullied more than NW peers, and younger boys with OB were often the bully aggressors as well as both victim and aggressor.
Klaczynski & Felmban[206] 2019*	China US	GRO (S)	SP Fac	Chinese: 181 Students MA:14.75± 1.63 53.5% F American: 154 Students MA: 14.90 ± 1.49 54.5% F	XS Quant	American adolescents showed higher levels of stereotyping of PwO, thin idealization, and attribution of obesity to character flaws than Chinese. "Thin idealization and causal attributions correlated positively with obesity stereotypes . . . and mediated the country-obesity personality and country-obesity generalization associations"[206] Girls showed more thin idealization and boys attributed more negative characteristic to PwO.
Wang et al[207] 2020*	China	GRO (S)	BTV OP	1818 Adol. 14-19yo MA: 16.5 ± 0.98 46% F	XS Quant	Weight status moderates the relationship between WS and eating behaviors. WS and negative associated consequences can be experienced regardless of weight status.
Cheng et al[208] 2018*	Hong Kong	GRO (Uni)	SP D&OP	400 Uni Students MA: 22.22 56.2% F	XS Quant	Regardless of actual or perceived weight status, weight bias was associated with a number of factors including inappropriate eating behaviors, anxiety, depression, and PWS. PWS also was related to inappropriate eating behaviors, anxiety, and depression.

Chan et al[209] 2019*	Hong Kong	GRO (S)	IWB OP	367 Students 8 -12yo 46% F	XS Quant	IWB is higher is OW than non-OW children. IWB was associated with poorer mental health independent of actual weight.
Wong et al[108] 2019^	Hong Kong	GRO (GRO)	IWB OP	50 Youth with OW & their primary caregiver Youth: 8-12yo MA: 9.36± 1.17 40% F Caregiver: 64% Mother 50 Youth without-OW and their primary caregiver 8-12yo MA: 9.73 ± 1.28 38% F Caregiver: 76% Mother	XS Quant	"This study showed that OW children had significantly higher self-stigma and lower HRQoL than did non-OW children in Hong Kong. Moreover, negative correlations between self-stigma and HRQoL were found in OW children."[108]
Fung, et al[210] 2020*	Hong Kong	GRO (Uni)	IWB OP	325 Uni Students 18-20yo MA: 21.6 ± 2.95 61.2% F	XS Quant	"[IWB] significantly explained the perceived behavioral control, behavioral intention, and engagement of PA. People without [OW] and people with [OW] have different considerations for PA"[210]

Pakpour et al[211] 2019*	Hong Kong	GRO (GRO)	QD OP	287 Children & Adol. 8-12yo MA: 10.21 ± 1.31 46.7% F	XS Quant	"[B]oth WSSQ and WBIS measures were valid scales to assess the internalization of weight bias. Despite considerable correlation between WSSQ and WBIS, our results suggest that these measures have specific psychometric properties and are not recommended to be usedinterchangeably."[211]
Lin, et al[212] 2020(2)*	Hong Kong Taiwan	S/P (Uni)	SE D&OP	707 Uni students Hong Kong: 56.6% Taiwan: 43.4% MA:20.27 ±1.79 53.9% F	XS Quant	"Perceived weight stigma was associated with eating disturbances and emotional distress in young adults with both higher and normal weight. Eating disturbances were associated with emotional distress regardless of participants' weight status."[212]
Tsai, et al[213] 2019*	Hong Kong Taiwan	GRO (Uni)	QD	707 Uni Students 400 (Hong Kong) MA: 20.22 ± 1.57 55.7% F 307 (Taiwan) MA: 20.34 ± 2.04 51.1% F	XS Quant	"[T]he Chinese versions of both the ATOP and BAOP might have suboptimal psychometric properties because of their low internal consistency, especially the subscales in the ATOP and the entire BAOP."[213]
Taniguchi & Lee[142] 2015	Japan US	M (GRO)	SIT D&Fac	102 F Japanese 18-24yo MA: 19.61 ± 1.55 159 F Americans 17-34yo MA: 20.92 ± 3.04	XS Quant	Japanese participants demonstrated weight bias, the American participants did not.

Jetly, et al[141] 2020	Malaysia	HC (HC)	SP D	316 Adult Patients MA: 36.83 ±12.88 67.4% F	XS Quant	"Significant negative patient attitudes of trust and adherence to advice were present among doctors who had high body mass index"[141]
Ling & Don[114] 2013	Malaysia	HH (GRO)	SIT Fac	N/A	Qual Content Analysis	Advertisements found were fat-phobic, using threats and warnings to coerce women to be/become thin. "At the same time, it shows how overweight women are marginalized and discriminated against." [114]
Ganapathy et al[214] 2019*	Malaysia	GRO (S)	BTV	27,485 Students 13-17yo	XS Quant	Being too thin, OB, or having a misperception of body weight increased the odds of being bullied.
Jiang et al[215] 2017	Singapore	GRO (Uni)	SP OP	104 F Uni Students 18-44yo MA: 21.6 ± 3.3 100% F	XS Quant	"[I]mplicit anti-fat bias is present among Asian females and is a valid predictor of weight-related behavioral intentions. However, anti-fat bias is often not expressed explicitly."[215]
Bang et al[216] 2012*	South Korea	HH (S)	BTV D&OP	455 Students Grades 5 & 6 51% F	XS Quant	Children with OB had lower perceived physical appearance and higher perceived parental teasing compared with NW. Perceived parental teasing mediated the relationships between BMI and various psychological outcomes.
Lim & An[143] 2018	South Korea	S HH (GRO)	SIT D&Fac	202 High School Students 17-19yo 49.5% F	XS Quant	"[A]dolescents who blamed individuals for being obese demonstrated high levels of obesity stigma . . . [B]ody image content emphasizing thinness and physical attractiveness on social media may have strengthened the obesity stigmatization through external attributions."[143]

Han et al[217] 2015	South Korea	HC (HC)	QD	323 Nurses 58.4% younger than 30yo	XS Quant	"The validity and reliability of this instrument were verified."[217] Nurses expressed negative stereotypes toward, were less likely to engage with, and felt inconvenienced and stressed out by patients with OB. They attributed obesity to personal and environmental factors.
Kim et al[218] 2016*	South Korea	S/P (S)	BTV	1640 Students 11-16yo MA: 13.93 50.9% F	XS Quant	OW boys were more likely to be perpetrators and victims of physical bullying than NW, but there were no associations regarding verbal/relational bullying. In girls, weight status was not related to bullying, unlike studies from the West
Lin et al[219] 2019*	Taiwan	S (S)	IWB D&OP	464 Adol. Grades 7-9 MA: 14.1 ± 0.8 50.2% F	XS Quant	PWS is associated with IWB and anxiety, and "eating disturbances were associated with emotional distress"[219] regardless of perceived or actual weight status.
Chang et al[220] 2017*	Taiwan	S (S)	BTV OP	1893 Adol. MA at baseline: 14.66 ± 0.5 51.2% F	Cohort Quant	"The association between BMI and depressive symptoms was significantly mediated by peer victimization and sleep problems. Higher BMI predicted more peer victimization [which also increased sleep problems itself] and sleep problems, each of which led to higher levels of depressive symptoms."[220] There were not differences found concerning this between sexes.
Wu & Liu[221] 2015	Taiwan	GRO (HC) (GRO)	SE OP	141 Adults w/OW MA: 36.7±12.4 51.8% F	XS Quant	High levels of WS were experienced by OW adults, with a positive correlation between WS and binge eating.
Yen et al[222] 2014*	Taiwan	S (S)	BTV OP	5,252 High School Students 12-18yo MA: 14.9 ± 1.8 51.3% F	XS Quant	The relationship between increased BMI and mental health problems was mediated by victimization of passive and active bullying and perpetration of passive bullying

2.3: Northern Africa and Western Asia

Author & Year	Country	Settings Stigma (Study)	Cat of WS	Population	Study Design	Main Findings
Shinan-Altman[223] 2017	Israel	HC (HC)	SP D	105 Medical Social Workers 26-69yo MA:43.45±11.48 96.2% F	XS Quant	Medical social workers saw obesity has having severe consequences that can be controlled through personal behaviors and treatment. They also had negative emotional representations and attitudes toward PwO.
Stone & Werner[224] 2012	Israel	HC (HC)	SE D	23 F Dietitians 27-59yo MA: 41	XS Qual	"Findings showed that while treating obese patients, dietitians underwent a stigmatization process involving cognitive [controllability of obesity], emotional [positive or negative feelings], and behavioural [shorter sessions, tone of voice] phases."[224]
Elboim-Gabyzon et al[225] 2020	Israel	HC PHC (Uni& HC)	SP D	285 PT MA: 39.6 ± 10.1 79% F 115 PT Students MA: 26.4 ± 4.9 60.2% F	XS Quant	WS is common among Israeli PT students and professionals. Overall, females had stronger negative attitudes toward PwO.
Hirschfeld-Dicker et al[147] 2019	Israel	HC (HC)	AWS OO	86 Parents Children & Adol. with OB 21-65yo 35-49yo: 67.4% 50-64yo: 23.3% 78% F	XS Quant	"The least stigmatising and most motivating and desirable terms were 'unhealthy body weight' and 'unhealthy lifestyle'. Medical staff mostly used 'overweight', which was relatively inoffensive yet not very motivating. 'Fat/obese' ('Shamen') was the most stigmatising and blaming term and the least desired. Only 20% of parents endorsed a nonverbal graphical tool to describe body size."[147]

Toren et al[145] 2020	Israel	S/P (Uni)	SP D&Fac	558 Pre-Education Students 70.1% F 26% Arab & Druze 51.8% Jewish (non-religious) 22.2% Jewish (religious)	XS Qual	Students from all three groups saw that woman with OB negatively and as having health problems whereas the NW woman was seen positively and as living a healthy lifestyle.
Alqahtani et al[226] 2020	Saudi Arabia	HC (HC)	SP D	250 GPs 30yo+: 74.8% 47.2% F	XS Quant	Among other main findings, only 28.4% of physicians disagreed with the statement "I feel discomfort dealing with [OW/OB] patients"[226]
Cetinkaya & Sert[227] 2018	Turkey	GRO (Uni)	SP D	2100 Uni Students 98.4% 17-26yo 49.7% F	XS Quant	"University students had a moderate fat phobia and negative attitudes towards obese individuals and many variables affected this situation."[227]
Cevik & Sivrikaya[228] 2019^	Turkey	PHC (Uni)	SP D	768 PHC Students	XS Quant	Prejudice against obesity among PHC students was prevalent with many factors correlating with the degree of prejudice, including being 18-20yo, living in the city center most life, and being single.
Usta et al [229] 2020	Turkey	PHC (Uni)	SP D	658 Nursing Students MA: 20.63 ± 1.52 76.6% F	XS Qual	"Students had moderate levels of fat phobia and attitudes towards obese individuals and they believed obesity is controlled by individuals."[229]

Yılmaz & Ayhan[105] 2019	Turkey	HC PHC (HC)	SP D	190 Nursing students MA.: 21.9 ± 1.1 84.7% F 189 RNs MA: 34.6 ± 8.2 96.2& F	XS Quant	"Both groups had negative prejudices toward obese persons, there was a higher level of prejudice among the registered nurses."[105] Higher BMI and having a PwO in the family was associated with more positive feelings toward PwO.
Ciloglu & Yilmaz[230] 2020	Turkey	S/P (S)	SP D	693 Students 10-14yo Grades 5-8 49.64% F	XS Quant	"[N]egative attitudes toward overweight children are highly prevalent among Turkish students."[230]
Altun Uğraş et al, [146] 2017	Turkey	HC (HC)	SE D&OO	297 Nurses 20-60yo MA:32.68 ± 7.67 86.8% F	XS Quant	"[N]urses were unwilling to provide care to obese surgical patients. The unwillingness was mostly caused by certain clinical features, nurses' emotional problems during care delivery, lack of necessary equipment, and inadequate staffing. " [146] By improving education and equipment available, improvement in patient care can be achieved.
Tas et al [231] 2020	Turkey	S/P (Uni)	BTV D&OP	110 Adol w/ OW/OB MA: 14.0 ± 1.5 52.7% F 55 Adol with NW MA: 14.9 ± 1.6 58.2% F 1 parent per youth	XS Quant	"[P]arents of obese or overweight adolescents did not show an increased weight bias . . . [The adolescents with OW/OB were] "more likely to be the victims and perpetrators of bullying behaviors than their normal-weight peers."[231]

Erdogan et al[232] 2018	Turkey	HC (HC)	QD	151 Patients w/OB MA: 41.4±7.41 64.2% F	XS Quant	*"The validity and reliability of [WSSQ] was found to be high in Turkey."*[232]
Hayran et al[233] 2013	Turkey	GRO (Uni)	SP	305 Uni Students MA 21.68 ± 2.23 71.8% F	XS Quant	"Fat phobia is common among university students, and women are more fat phobic than men." [233]
Sevincer et al [109] 2017	Turkey	HC (HC)	QD	120 Patients w/ severe OB MA:37.65±12.41 80% F	XS Quant	The "Turkish WSSQ is a valid and reliable tool with a robust factorial structure to use for measuring weight-related self-stigma in the clinical population in Turkey." [109]
Yildiz & Baysal[144] 2019	Turkey	PHC (Uni)	SP	729 PHC Students 68% F	XS Quant	"[U]niversity students who will be future nurses and other healthcare professionals, tend toward obesity prejudice." [144]
Nair et al [234] 2019	UAE	HC (GRO)	SP D	573 GPs 18-70yo 45.5% 31-50yo 59% F	XS Quant	Physicians with OW/OB had more negativity toward PwO and the management of OB than physicians of NW.
O'Hara et al [235] 2016*	UAE	HH&M (S)	IWB OP	420 F Uni Students MA: 23.12 ± 4.62	XS Quant	"Eating disorder symptomatology was positively correlated with being bothered by teasing from family, friends and others, and internalized weight stigma. Weight- and body-related shame and guilt was the strongest predictor of eating disorder symptomatology." [235]
Weaver & Trainer[236] 2017*	UAE	GRO (Uni)	SE F&OP	103 F Uni Students Professionals in HC & Higher Education	XS Qual & Obs	Stigma from external (harassment, bullying) and internal (shame and feelings of failure) origins were evident. This stigmatization possibly caused as much if not more harm to wellbeing that of having obesity itself.

2.4: Central and Southern Asia

Author & Year	Country	Settings Stigma (Study)	Cat of WS	Population	Study Design	Main Findings
Dhillon & Dhawan[150] 2011	India	GRO (S & Uni)	SE Fac&D	3 F Adol Ages 15, 16, & 17 7 F Uni Students MA: 19. 71	XS Qual	"The participants identified messages from parents, peers and the media, as creating pressure to lose weight and believed that reducing weight would lead to better life opportunities and greater acceptance from others."[150]
Agrawal et al[106] 2015*	India	GRO (GRO)	SE OP	325 Ever-Married F 20-54yo	XS Quant	Day-to-day problems, body image dissatisfaction, discrimination and stigmatization were reported in women with OW/OB and positively associated with the degree of obesity.
Patel et al[237] 2017	India	S/P (S)	BTV	1106 Students 7th, 8th and 9th graders 41.1% F	XS Quant	"Male gender, being obese/overweight, having six or less friends, and poor academic performance were found to be associated with higher victim experiences."[237]
Kersbergen & Robinson[104] 2019	India US UK	GRO (GRO)	SP D	374 Total MA:34.78±10.07 42.8% F 107 from India MA: 33.06 ± 8.14 29.9% F See full text for US & UK details	XS Quant	"'Obese Indians' were rated as significantly less human than 'Indians'"[104] and were not more likely to donate the charity benefiting PwO . The same was true of the American and British samples.

Garousi[238] 2014	Iran	S/P (S)	SP D	500 Children 6-14yo MA: 9.7yr ± 1.94 50.4% F	XS Quant	For boys: their BMI had no relationship with anti-fat attitudes. Higher BD was associated with perceiving OB children as friendly, but they still preferred thin friends. For girls: Thinner girls had higher anti-fat attitudes. Regardless of BD, girls preferred thinner friends.
Hemati & Zokaei[239] 2016	Iran	HC (HC)	SP D	80 Nurses MA: 36.24 ± 7.49 77.5% F	XS Quant	Attitudes and beliefs concerning PwO varied based on the weight status of nurses, with OW nurses having more positive attitudes than NW or UW nurses.
Amini et al[149] 2014*	Iran	GRO (S)	AWS Fac& OO	27 Students, most w/ OW/OB 10.6-11.6yo 59.3% F	XS Qual	"The findings indicate that obese children need to be supported against different barriers of losing weight, mainly social barriers, especially humiliation by the community."[149]
Ahorsu et al[172] 2020	Iran	GRO (S)	IWB OP	1,497 Students MA: 15.1 54.3%F	Cohort Quant	IWB was not directly associated with binge eating, but it was through the mediators of food addiction and psychological distress.
Farhangi et al[240] 2017	Iran	GRO (HC)	IWB OP	170 F referred to HC 17-45yo 73.5% under 37yo	XS Quant	IWB negatively affects QOL and psychological wellbeing of women with OW/OB.
Lin et al[241] 2020	Iran	S/P (S)	IWB OP	934 Adol. w/ OW/OB MA: 15.7±1.2 52.5% F	Qual Cohort	"Weight-related self-stigma and insomnia were significant mediators in the effects of excess weight on health outcomes."[241]

Simkhada et al [242] 2011	Nepal	GRO (GRO)	SP D	341 Civil Servants 21-57yo MA: 40.9 ± 6.6 17.6%F	XS Quant	OB knowledge was good, though attitudes towards PwO were negative. Marriage and/or having a better job considerably increased the odds of having OW/OB. "Heavier people were more likely to disagree with attitudes that obese people were 'lazier' and 'untidy."[242]
Awan, et al[148] 2016	Pakistan	PHC Uni	SP D	218 Dental Students MA: 24.0 ± 1.3 63.3% F	XS Quant	"[D]ental students attributed personality characteristics, such as appearance, laziness, feeling uncomfortable, lack of self-control, and low motivation, to obesity . . . [M]ore than half reported negative reactions to the appearance of obese patients and were uncomfortable with examining" [148]them.
Munir & Dawood[243] 2020	Pakistan	S/P (S)	BTV OP	200 Adol F w/OW 15-19yo MA: 17.37 ± 1.5	XS Quant	"[W]eight stigma and body esteem play a significant role in the development and maintenance of disordered eating behaviors in overweight adolescents."[243]
Kanwal & Naqvi[119] 2020	Pakistan	GRO (Uni)	QD	Adults and Uni Students See text for full details	XS MM	"Overall, both instruments emerged as reliable and valid measures to assess the explicit attitude and myths related to obesity in Pakistani culture."[119]
Rafeh &Hanif[118] 2019	Pakistan	GRO (Uni)	QD	Adults & Uni students See full text for details	XS MM	"Perceived Weight Stigmatization Scale turned out to be a reliable and valid instrument for measuring perception of weight stigma in adults with obesity"[118]
Mahmood, et al [244] 2013^	Pakistan	HC (Uni)	SE	2114 PHC Uni Students	XS Quant	"Weight stigmatization is highly prevalent among undergraduate students of medicine and allied health sciences in Karachi with over a quarter of respondents having experienced it."[244] Men reported higher stigmatization than women

2.5: Sub-Saharan Africa

Author & Year	Country	Settings Stigma (Study)	Cat of WS	Population	Design	Main Findings
Amenyah & Michels [162] 2016	Ghana	S/P (S)	BTV D&OP	370 Adol. 11-18yo 53% girls	XS Quant	Among other findings, "both UW and OW adolescents reported teasing."[162]
Uleanya et al[161] 2018	Nigeria	S/P (S)	SE D&OP	200 Adol. Students 10-19yo MA: 12.8 ± 1.8 68% F	XS Quant	"Obesity predicts only stigmatisation but not depression, anxiety, discrimination or self-esteem but is significantly associated with stigma."[161]
Wilson et al[115] 2013	Seychelles	GRO (S)	BTV	1006 Adol. 11-17yo	XS Quant	Both actual and perceived OW was associated with being bullied, with perceived OW having a stronger association than actual OW. This was especially true in boys.
Govender, et al [245] 2019	South Africa	GRO (HC)	SP OP	100 Adults w/ OW/OB 90% under 60yo 83% female	XS Quant	"Psychosocial factors such as weight bias affect the eating behaviours of persons with [OW] and [OB] in South Africa"[245]
Henry & Kollamparambil[151] 2017 *	South Africa	E/F (GRO)	SE	16,972 employed individuals 15-65yo	XS Quant	"[I]ncreasingly obesity has adverse labour market implications. Obesity-based discrimination exists in South Africa and is predominantly faced by obese women entering the workplace and continues in the wage determination of both men and women." [151]
Some et al[152] 2016^	South Africa	E/F (GRO)	SE	Not stated	XS Quant	"The findings suggest that obesity has a negative impact on employment status in South Africa."[152]

Viviers & Smit[113] 2014	South Africa	E/F (GRO)	AWS Fac& OO	N/A	Legal Comm	Despite high levels of OW, constitutional rights to dignity and quality, and a number of legal cases related to weight discrimination in employment, South Africa still as no laws protecting PwO against discrimination but needs to.
Macchi[117] 2021	Uganda	E/F (GRO)	SE D&Fac	Beliefs: 511 Adults MA:37.47± 13.20 50% F Credit: 254 Loan Officers MA: 31.28 ±7.03 39% F	XS Quant Exper.	"[R]estidents of Kampala . . .perceive obesity as a reliable proxy for wealth . . .[O]besity facilitates access to credit by 60% compared to normal weight"[117] due to obesity being a proxy for wealth.

2.6: Oceania

Author & Year	Country	Settings Stigma (Study)	Cat of WS	Population	Study Design	Main Findings
Hardin[153] 2015*	Samoa	HC (HC)	SP Fac &OP	25 Physicians & Nurses	XS Qual	Healthcare providers view culture as the main determinant of patients' behaviors rather than blaming patients' for having obesity, but not acknowledging structural determinants of obesity places responsibility of addressing obesity back on patients

2.7: Multi-Country

Author & Year	Country	Settings Stigma (Study)	Cat of WS	Population	Study Design	Main Findings
Brewis & Wutich[157] 2014	4 countries, 3 in inclusion criteria	GRO (GRO)	SP Fac	Paraguay 201 F MA: 38.9 ± 13.4 Bolivia 101 F MA: 34.4 ± 9.5 India 41 F MA: 20.9 ± 2.2 US 48 Uni Students MA: 21.8 ± 4.2 & 23 Muslim F MA: 30.4 ± 9.7	XS Quant	There were high levels of explicit fat stigma in all samples. India and US university students had more fat-negative implicit WS, Paraguayan women had neutral implicit WS, Bolivian and Muslim US women had fat-positive implicit WS.
Brewis et al[158] 2011*	10 countries, 6 in inclusion criteria	GRO (GRO)	SP Fac	680 Adults M= 36.3yo 60% F	XS Quant	There is cultural globalization related to obesity and WS. Only Tanzania had a showed a lack of WS. Mexico, Paraguay, and American Samoa had the highest fat-stigmatization scores.

Sievert et al[155] 2018*	15 countries, 9 in inclusion criteria	M (GRO)	SIT Fac	N/A	Qual Content Analysis	Most imagery was negative (stigmatizing) toward PwO. India, the Netherlands, Brazil, and Japan had more non-stigmatizing images than stigmatizing. Canada had equal amounts of both stigmatizing and non-stigmatizing. South Africa, Hong Kong, Italy, Austria, Morocco, Mexico, Dominican Republic, Columbia, and Serbia had more stigmatizing than non-stigmatizing images.
Clément et al[156] 2020	3 countries, all in inclusion criteria	E/F (GRO)	SE Fac	China 2,169 Workers India 28,054 Workers Mexico 6,004 Workers 18-65yo	XS Quant	There is "evidence of potential anti-fat discrimination in China and pro-fat-discrimination in India and Mexico"[156] in employment. This is holds for women in all 3 countries as well.
Marini et al[93] 2013*	71 countries, 32 in inclusion criteria	GRO (GRO)	SP Fac	338,121 Adults 18-89yo MA:27.8±10.64 70.5% F Mean sample: 4,762 ± 26,842	XS Quant	For individuals and countries, higher BMI was associated with lower and higher implicit bias towards PwO, respectively. Implicit bias against PwO was evident in all countries
Koyanagi, et al [154] 2020*	41 countries, 41 in inclusion criteria	GRO (GRO)	BTV	114 240 Adol. 12 -15yo MA: 13.8 ± 1.0 48.8% F	XS Quant	Unlike boys, girls in LMICs "with [OW] and [OB] are more likely than normal weight girls to experience bullying,"[154] though when accounting for the primary form of bullying, "boys with [OW/OB] are also exposed to higher risk for some specific forms of bullying"[154] than NW boys